

Petition For Revival Of An Application For Patent Abandoned
Unintentionally Under 37 CFR 1.137(b) (Large Entity)

COPY

Docket No.
55750 (45672)

In Re Application Of: Takako ADACHI and Makoto SHIOMI

Serial No.	Filing Date	Examiner	Group Art Unit
09/820,021	28 March 2001	Zamani, Ali A.	2674

Invention:

LIQUID CRYSTAL DISPLAY DEVICE

Attention: Office of Petitions
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

NOTE: If information or assistance is needed in completing this form, please contact Petitions Information at (703) 305-9282.

The above-identified application became abandoned for failure to file a timely and proper response to a notice or action by the Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extension of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee--required for all utility and plant applications filed before June 8, 1995; and for all design applications; and
- (4) Statement that the entire delay was unintentional.

1. ☒ A proposed reply to the above-identified notice or action:

☒ is enclosed. ☐ was filed on _____

The proposed reply is in the form of: Continuation Application

2. ☐ The issue fee:

☐ is enclosed. ☐ was paid on _____

3. ☒ The abandoned application was a:

☐ design application. ☒ utility application. ☐ plant application.

4. ☐ A terminal disclaimer (and fee) disclaiming a period equivalent to the period of abandonment is enclosed.

5. ☒ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

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Serial No.
09/820,021

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28 March 2001

Examiner
Zamani, Ali A.

Group Art Unit
2674

Invention:

LIQUID CRYSTAL DISPLAY DEVICE

Calculation and Payment of Fees

Enclosed are the following fees:

- | | |
|---|-----------------------------|
| 6. <input checked="" type="checkbox"/> Petition fee under 37 CFR 1.17(m) in the amount of: | <u>\$1,300.00</u> |
| 7. <input type="checkbox"/> Fee for amendment in the amount of: | <u> </u> |
| 8. <input type="checkbox"/> Fee for extension of time to respond to Office Action in the amount of: | <u> </u> |
| 9. <input type="checkbox"/> Issue fee in the amount of: | <u> </u> |
| 10. <input checked="" type="checkbox"/> Continuing application filing fee in the amount of: | <u>\$750.00</u> |
| 11. <input type="checkbox"/> Terminal disclaimer fee in the amount of: | <u> </u> |
| 12. <input type="checkbox"/> _____ | <u> </u> |

Total fees enclosed: \$2,050.00

The fee of **\$2,050** is to be paid as follows:

- ☒ A check in the amount of the fee is enclosed.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. **04-1105**

**Petition For Revival Of An Application For Patent Abandoned
Unintentionally Under 37 CFR 1.137(b) (Large Entity)**

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Docket No.
55750 (45672)

In Re Application Of: Takak ADACHI and Makoto SHIOMI

Serial No.
09/820,021

Filing Date
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Examiner
Zamani, Ali A.

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2674

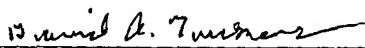
Invention:

LIQUID CRYSTAL DISPLAY DEVICE

Statement

The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional.

In addition, please note the Supplemental Statement attached.


Signature

Dated: July 18, 2003

David A. Tucker
Reg. No. 27,840
Attorney for Applicant
Edwards & Angell, LLP
P.O. Box 9169
Boston, MA 02209
Telephone (617) 517-5508



21874

PATENT TRADEMARK OFFICE

cc:



COPY

Practitioner's Docket No. 55750 (45672)
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: T. Adachi, et al.
Application No.: 09/820,021 Group No.: 2871
Filed: March 28, 2001 Examiner: Unknown
For: LIQUID CRYSTAL DISPLAY DEVICE

Mail Stop: NO FEE AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT TRANSMITTAL

1. Transmitted herewith is a Request for Reconsideration for this application.

STATUS

2. Applicant is
[] a small entity. A statement:
[] is attached.
[] was already filed.
[X] other than a small entity.

EXTENSION OF TERM

NOTE: "Extension of Time in Patent Cases (Supplement Amendments) -- If a timely and complete response has been filed after a

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. SECTION 1.8(a))

I hereby certify that, on the date shown below, this correspondence is being:

MAILING

- [x] deposited with the United States Postal Service
with sufficient postage as first class mail in an
envelope addressed to the Commissioner for
Patents, P.O. Box 1450, Alexandria, VA 22313-
1450.

FACSIMILE

- [] transmitted by facsimile to the Patent and
Trademark Office (703) _____.

Signature

Date: May 15, 2003

Kathryn A. Grindrod

(type or print name of person certifying)

(Amendment Transmittal--page 1 of 4)

COPY

after expiration of the shortened statutory period.

If a timely response has been filed after a Final Office Action, an extension of time is required to permit filing and/or entry of a Notice of Appeal or filing and/or entry of an additional amendment after expiration of the shortened statutory period unless the timely-filed response placed the application in condition for allowance. Of course, if a Notice of Appeal has been filed within the shortened statutory period, the period has ceased to run." Notice of December 10, 1985 (1061 O.G. 34-35).

NOTE: See 37 C.F.R. Section 1.645 for extensions of time in interference proceedings, and 37 C.F.R. Section 1.550(c) for extensions of time in reexamination proceedings.

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. Section 1.136 apply.

(complete (a) or (b), as applicable)

- (a) ☐ Applicant petitions for an extension of time under 37 C.F.R. Section 1.136 (fees: 37 C.F.R. Section 1.17(a)(1)-(4)) for the total number of months checked below:

	Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 400.00	\$ 200.00
<input type="checkbox"/>	three months	\$ 920.00	\$ 460.00
<input type="checkbox"/>	four months	\$ 1,440.00	\$ 720.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured. The fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ _____

OR

- (b) ☒ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

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FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. Section 1.16(b)-(d)) has been calculated as shown below

(Col.1)	(Col. 2)	SMALL ENTITY			OR	OTHER THAN A SMALL ENTITY	
Claims Remaining After Amendment	Highest No. Previously Paid For	Present Extra	Rate	Addit. Fee		Rate	Addit. Fee
			\$9.00	\$		\$18.00	\$
	Independent Claims		\$42.00	\$		\$84.00	\$
	First Presentation of Multiple Dependent Claim+		\$140.00	\$		\$280.00	\$
						Total Addit. Fee	\$

* If the entry in Col. 1 is less than the entry in Col. 2, write "O" in Col. 3,

** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest No. Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest No. Previously Paid For" (Total or Indep.) is the highest number found in the appropriate box in Col. 1 of a prior amendment or the number of claims originally filed.

WARNING: *"After final rejection or action (Section 1.113) amendments may be made canceling claims or complying with any requirement of form which has been made." 37 C.F.R. Section 1.116(a) (emphasis added).*

(complete (c) or (d), as applicable)

(c) ☒ No additional fee for claims is required.

OR

(d) ☐ Total additional fee for claims required \$ _____.

FEE PAYMENT

5. ☐ Attached is a check in the sum of \$ _____.
- ☐ Charge Account No. _____ the sum of \$ _____.
- A duplicate of this transmittal is attached.

COPY

FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum, six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, (1065 O.G. 31-33).

6. [X] If any additional extension and/or fee is required, charge Account No. 04-1105.

AND/OR

[X] If any additional fee for claims is required, charge Account No. 04-1105.

David A. Tucker
SIGNATURE OF PRACTITIONER

Reg. No. 27,840

David A. Tucker
(type or print name of practitioner)
Attorney for Applicant

Tel. No. (617) 517-5508

Edwards & Angell, LLP
P.O. Box 9169
P.O. Address

Customer No. 21874

Boston, MA 02209

335574

IN THE CLAIMS:

Please amend Claims so as to read as follows:

1. (As originally filed) A liquid crystal display device, comprising:
a liquid crystal panel including a liquid crystal layer and an electrode for
applying a voltage to the liquid crystal layer; and
a driving circuit for supplying a driving voltage to the liquid crystal panel,
wherein
the liquid crystal panel exhibits, in its voltage-transmittance
characteristics, an extreme transmittance at a voltage equal to or
lower than a lowest gray-level voltage, and
the driving circuit supplies to the liquid crystal panel a predetermined
driving voltage overshooting a gray-level voltage corresponding to
an input image signal of a current vertical period, according to a
combination of an input image signal of an immediately preceding
vertical period and the input image signal of the current vertical
period.
2. (As originally filed) The liquid crystal display device according to claim 1,
wherein a difference in retardation of the liquid crystal panel between a
state where a voltage is not applied and a state where a highest gray-level
voltage is applied is 300 nm or more.

3. (As originally filed) The liquid crystal display device according to claim 1, wherein the liquid crystal panel is a transmission-type liquid crystal panel, and the extreme transmittance provides a maximum transmittance.
4. (As originally filed) The liquid crystal display device according to claim 1, wherein a single vertical period of the input image signal corresponds to a single frame, at least two fields of the driving voltage correspond to a single frame of the input image signal, and the driving circuit supplies, at least in a first field of the driving voltage, a driving voltage overshooting a gray-level voltage corresponding to an input image signal of a current field to the liquid crystal panel.
5. (As originally filed) The liquid crystal display device according to claim 1, wherein the liquid crystal layer is a homogeneous-orientation liquid crystal layer.
6. (As originally filed) The liquid crystal display device according to claim 1, wherein the liquid crystal panel further includes a phase compensator, three principal refractive indices n_a , n_b and n_c of an index ellipsoid of the phase compensator have a relation of $n_a = n_b > n_c$, and the phase compensator is arranged so as to cancel at least a part of retardation of the liquid crystal layer.

7. (As originally filed) A liquid crystal display device, comprising:
- a liquid crystal panel including a plurality of picture-element capacitors arranged in a matrix, and thin film transistors respectively electrically connected to the plurality of picture-element capacitors; and
 - a driving circuit for supplying a driving voltage to the liquid crystal panel, wherein
- the liquid crystal display device updates display every vertical period by rendering the plurality of picture-element capacitors in a charged state corresponding to the input image signal,
- each of the plurality of picture-element capacitors includes a liquid crystal capacitor formed from a corresponding picture-element electrode, a counter electrode and a liquid crystal layer provided between the picture-element electrode and the counter electrode, and
- a storage capacitor electrically connected in parallel with the liquid crystal capacitor, a capacitance ratio of the storage capacitor to the liquid crystal capacitor being 1 or more, and
- the picture-element capacitor retains 90% or more of a charging voltage over a single vertical period, when at least a highest gray-level voltage is applied.
8. (As originally filed) The liquid crystal display device according to claim 7,
- wherein the driving circuit supplies to the liquid crystal panel a predetermined driving voltage overshooting a gray-level voltage corresponding to an input image signal of a current vertical period, according to a combination of an input image signal of an immediately preceding vertical period and the input image signal of the current vertical period.

9. (As originally filed) The liquid crystal display device according to claim 8, wherein, for the input image signal of every gray level, the driving circuit supplies to the liquid crystal panel the driving voltage overshooting the gray-level voltage corresponding to the input image signal of the current vertical period.
10. (As originally filed) The liquid crystal display device according to claim 7, wherein the liquid crystal layer of the liquid crystal panel includes a nematic liquid crystal material having a positive dielectric anisotropy, the liquid crystal layer included in each of the plurality of picture-element capacitors includes first and second regions having different orientation directions, and the liquid crystal panel further includes a pair of polarizers arranged so as to orthogonally cross each other with the liquid crystal layer interposed therebetween, and a phase compensator for compensating for a refractive index anisotropy of the liquid crystal layer in a black display state.
11. (As originally filed) The liquid crystal display device according to claim 7, wherein the liquid crystal layer is a homogeneous-orientation liquid crystal layer.
12. (As originally filed) The liquid crystal display device according to claim 11, wherein the liquid crystal panel further includes a phase compensator, three principal refractive indices n_a , n_b and n_c of an index ellipsoid of the phase compensator have a relation of $n_a = n_b > n_c$, and the phase compensator is arranged so as to cancel at least a part of retardation of the liquid crystal layer.

13. (New Claim) A liquid crystal display device, in which a driving circuit applies a driving voltage to a liquid crystal panel to control the transmittance of the liquid crystal panel for display, wherein:

the liquid crystal panel exhibits, in its voltage-transmittance characteristics, a maximum or minimum transmittance at a voltage lower than a lowest gray-level voltage; and
the driving circuit selectively supplies to the liquid crystal panel as a predetermined driving voltage corresponding to an input image signal of a current vertical period, according to a combination of an input image signal of an immediately preceding vertical period and an input image signal of the current vertical period, at least a gray-level voltage which falls within a range between the lowest gray-level voltage and the highest gray-level voltage, and an overshoot gray-level voltage which is lower than the lowest gray-level voltage.

14. (New Claim) A liquid crystal display device according to claim 13, wherein:

the liquid crystal panel is a normally white mode liquid crystal panel.

15. (New Claim) A liquid crystal display device according to claim 14, wherein
the driving circuit selectively applies the gray-level voltage which falls within a range between the lowest gray-level voltage and the highest gray-level voltage, the overshoot voltage which is lower than the lowest gray-level voltage, and an overshoot gray-level voltage which is higher than the highest gray-level voltage.

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16. (New Claim) A liquid crystal display device according to claim 13, wherein:
the liquid crystal panel is a normally black mode liquid
crystal panel.
17. (New Claim) A liquid crystal display device according to claim 16, wherein
the driving circuit selectively applies the gray-level voltage which
falls within a range between the lowest gray-level voltage and the
highest gray-level voltage, the overshoot voltage which is lower
than the lowest gray-level voltage, and an overshoot gray-level
voltage which is higher than the highest gray-level voltage.

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REMARKS

This Preliminary Amendment is being filed for the purpose of adding Claims 13 – 17 prior to the initial substantive examination of this application.

All of the claims that will be pending in this application upon the entry of the foregoing Amendment are set forth above as required by the Rules.

Applicants respectfully submit that New Claims 13 - 17 do not add any new matter to this application. Further, the entry of New Claims 13 – 17 will provide what Applicants respectfully submit is a more clear, complete and appropriate range of coverage of the subject matter that Applicants regard as their invention.

Applicants respectfully submit that Claims 1 - 17 of this application, as they will stand upon the entry of the foregoing Amendment, are in condition for allowance. Entry of the foregoing Amendment, early consideration of this application and allowance of this application in response to this communication, therefore, are respectfully requested.

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Applicants also believe that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. **04-1105**, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

Date: May 15, 2003

By: David A. Tucker

David A. Tucker
Reg. No. 27,840
Attorney for Applicant(s)

EDWARDS & ANGELL, LLP
P.O. Box 9169
Boston, Massachusetts 02209
(617-517-5508)



COPY

Attorney's Docket No. 55750 (45672)
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Takako Adachi, et al.
Application No.: 09/820,021 Group: 2674
Filed: March 28, 2001 Examiner: Zamani, Ali A.

For: LIQUID CRYSTAL DISPLAY DEVICE

**Mail Stop: office of Petitions
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

CERTIFICATE OF EXPRESS MAILING UNDER 37 C.F.R. 1.10

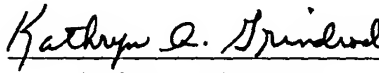
I hereby certify that the following correspondence:

Petition For Revival Of An Application For Patent Abandoned Unintentionally Under 37 CFR 1.137(b)
including its attachments

Is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service
under 37 CFR 1.10 (Express Mail Label No. EV 343733545 US), and is addressed to:

**Mail Stop: Office of Petitions
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

on July 18, 2003


Kathryn A. Grindrod

342021



21874

PATENT TRADEMARK OFFICE

COPY

Attorney Docket No. 55,750 (45672)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): T. Adachi, et al EXAMINER: Zamani, Ali A.
SERIAL NO.: 09/820,021 GROUP: 2674
FILED: 28 March 2001
FOR: LIQUID CRYSTAL DISPLAY DEVICE

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service as Express Mail, Post Office to Address Service, Express Mail Label No. **EV343733545US** under 37 CFR 1.10 in an envelope addressed to Mail Stop: Office of Petitions, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 18 July 2003.

By: Kathryn A. Grindrod
Kathryn A. Grindrod

Mail Stop: Office of Petitions
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

**SUPPLEMENTAL STATEMENT IN SUPPORT OF PETITION FOR
REVIVAL OF ABANDONED APPLICATION UNDER 37 CFR 1.137(b)**

In further support of the Petition to Revive the above-identified application under 37 CFR 1.137(b) the undersigned attorney for Applicants states as follows:

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The Notice of Abandonment in the above-identified application was issued by the United States Patent Office on 18 June 2003 on the basis that Applicants failed to respond to an Official Action dated 20 November 2002 prior to the statutory due date for the filing of such a response (i.e., 20 May 2003).

Applicants and Applicants' attorney's failure to file a timely response to the Official Action dated 20 November 2002 was unintentional throughout the entire statutory period for response.

More particularly, Applicants' attorneys, who were designated to receive correspondence from the United States Patent and Trademark Office in connection with the above-identified application, have to date not received a copy of the Official Action dated 20 November 2002 in the above-identified case. Further, Applicants' attorneys did not become aware of the existence of the Official Action of 20 November 2002 in the above-identified case until on or about 10 June 2003 in connection with the citation of the publication of this application against another application being prosecuted by this office.

At the time the Official Action of 20 November 2002 was issued, Applicants' attorney's address had changed from 130 Water Street, Boston, MA as designated in the originally filed application papers to P.O. Box 9169, 101 Federal Street, Boston, MA, and no formal change of address had yet been filed in this application. Nevertheless, as of 20 November 2002, Applicants' attorneys had in place an agreement with the United States Postal Service under which all mail addressed to their prior address was to be delivered to them at their new address. Applicants' attorneys consistently received mail directed to them by the United States Patent and Trademark Office at their former address at their new address until at least the end of December 2002, but the Official Action dated 20 November 2002 in this case was never so received.

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On 5 December 2002, Applicants' attorneys submitted to the United States Patent and Trademark Office a spreadsheet including some 24 pages detailing the patent applications and issued patents that they desired to be associated with their customer number, 21874 (see copy attached). The above-identified application is listed on page 23 of that spreadsheet as the 10th item from the top. This submission is believed to have been sufficient as a formal change of address in all of the listed cases.

Accordingly, it is respectfully submitted that Applicants' attorneys acted reasonably and properly to assure that all mail directed to them by the United States Patent and Trademark Office would either be forwarded to them by the United States Postal Service or correctly addressed by virtue of the notification document attached hereto.

Still further, attention is respectfully directed to the fact that Applicants filed a Preliminary Amendment in the above-identified case on 15 May 2003 and filed a Status Inquiry in the above-identified case on 28 May 2003. It is respectfully submitted that these filings were inconsistent with any receipt of the Official Action of 20 November 2002 in the above-identified case, and support Applicants' attorneys' statements to the effect that the Official Action of 20 November 2002 was never received. (See copies attached as part of the continuation application filed concurrently herewith)

Finally, Applicants' attorneys wish to acknowledge a series of telephone interviews conducted with the Examiner in early June of 2003 concerning the status of this application. During these interviews, Applicants' attorneys attempted to secure the re-issuance of the Official Action of 20 November 2002 by the Examiner based upon the fact that it had never been received. The result of these interviews, however, was that the Examiner after consultation with his supervisor refused Applicants' attorneys' request and indicated that a Notice of Abandonment would be issued in due course from which Applicants could petition for revival.

It is respectfully submitted that the foregoing circumstances clearly establish the fact that the failure to respond to the Official Action of 20 November 2002 in this application was unintentional for the entire statutory period for response and that Applicants by the filing of the attached Petition and Continuation Application have acted diligently to correct to unintended basis for the presently outstanding holding of abandonment.

Revival of this application at least for the purpose of allowing the filing of the attached continuation application during the pendency of the above-identified application is therefore respectfully requested.

COPY

Applicants also believe that additional fees beyond those submitted herewith are not required in connection with the consideration of this submission. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. **04-1105**, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

Date: July 18, 2003

By: David A. Tucker

David A. Tucker
Reg. No. 27,840
Attorney for Applicant(s)

EDWARDS & ANGELL, LLP
P.O. Box 9169
Boston, Massachusetts 02209
(617-517-5508)
341954



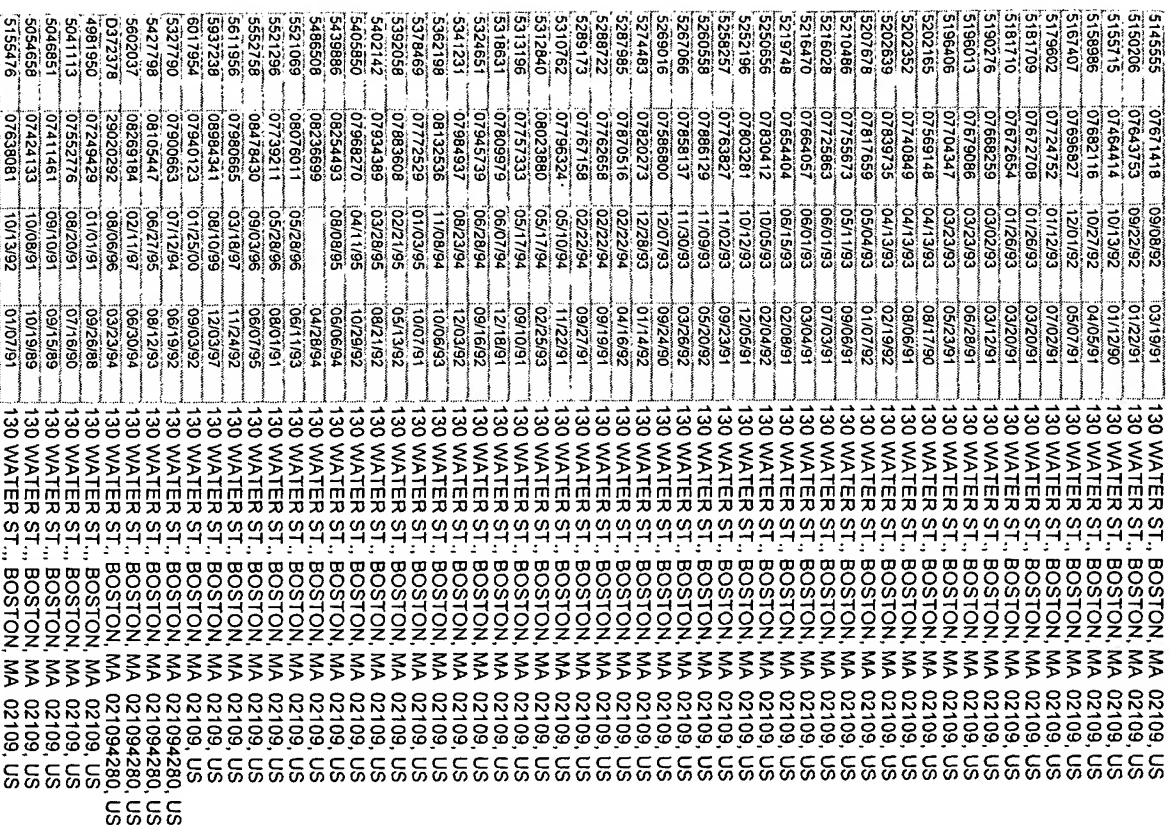
21874

PATENT TRADEMARK OFFICE

00021874

Edwards & Angell, LLP
P.O. Box 9169
Boston, MA 02209-4180

[illegible]



ROBERT M. SHER, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN, ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	YES	YES	YES
ATTN: DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERT F. O'CONNELL, ESQ., DIKE, BRONSTEIN, DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN ET AL.	YES	YES	YES
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN ET AL. DIKE, BRONSTEIN, ROBERTS & CUSHMAN, DAVID ATTN: DONALD BROWN, ESQ., DIKE, BRONSTEIN,	YES	YES	YES
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	YES	YES	YES
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS & ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	YES	YES	YES
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	YES	YES	YES
ROBERT L. GOLDBERG, DIKE, BRONSTEIN, ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	YES	YES	YES
ROBERT F. O'CONNELL, DIKE, BRONSTEIN, ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	YES	YES	YES
ROBERT F. O'CONNELL, DIKE, BRONSTEIN, ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	YES	YES	YES
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN, DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	YES	YES	YES
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & PETER J. MANUS, ESQ., DIKE, BRONSTEIN,	YES	YES	YES
DAVID G. COLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES
DONALD BROWN, ESQ., DIKE, BRONSTEIN, DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES
DAVID G. COLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS AND	YES	YES	YES
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & GEORE W. NEUNER, DIKE, BRONSTEIN, ROBERTS DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS & PETER J. MANUS, ESQ., DIKE, BRONSTEIN,	YES	YES	YES
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS & LINDA M. BUCKLEY, DIKE BRONSTEIN, ROBERTS & ERNEST V. LINEK, DIKE, BRONSTEIN, ROBERTS & DIKE, BRONSTEIN, ROBERTS, CUSHMAN & PFUND	YES	YES	YES
DONALD BROWN, ESQ., DIKE, BRONSTEIN, ROBERT F. O'CONNELL, ESQ., DIKE, BRONSTEIN, HENRY D. PAHL, JR., DIKE, BRONSTEIN, ROBERTS & DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	YES	YES	YES

51821395	07576545	0126693	109/038	30 WATER ST., BOSTON, MA 02109, US
5209134	07576450	0561193	109/090	30 WATER ST., BOSTON, MA 02109, US
5327502	07821221	0705694	011/692	130 WATER ST., BOSTON, MA 02109, US
47040088	08615373	1170387	1231/05	130 WATER STREET, BOSTON, MA 02109, US
10219245	10219245	0601502	108/502	130 WATER STREET, BOSTON, MA 02109, US
5215678	07808007	0601193	121/051	130 WATER STREET, BOSTON, MA 02109, US
10086610	06866510	0562001	0562001	130 Water Street, Boston, MA 02019, US
10084108	10084108	1101010	0717/498	130 Water Street, Boston, MA 02103, US
04317133	29090667	101/000	0717/498	130 WATER STREET, BOSTON, MA 02109, US
48223248	07045613	041/889	041/889	130 WATER STREET, BOSTON, MA 02109, US
48394548	07068001	061/389	061/787	130 WATER STREET, BOSTON, MA 02109, US
48470502	07031439	0711189	0326/87	130 WATER STREET, BOSTON, MA 02109, US
4876331	07230461	020489	108/1088	130 WATER STREET, BOSTON, MA 02109, US
49031325	07134771	1022090	121/687	130 WATER STREET, BOSTON, MA 02109, US
4917670	07117895	0417190	0322288	130 WATER STREET, BOSTON, MA 02109, US
4917774	06855360	0517190	0424/06	130 WATER STREET, BOSTON, MA 02109, US
4925710	071475975	0515190	0331/188	130 WATER STREET, BOSTON, MA 02109, US
49327545	07141869	0626290	1292/987	130 WATER STREET, BOSTON, MA 02109, US
4942883	07102540	0727490	0292/87	130 WATER STREET, BOSTON, MA 02109, US
4947187	07296840	0807190	011/8189	130 WATER STREET, BOSTON, MA 02109, US
4952286	07153366	0828290	1205/088	130 WATER STREET, BOSTON, MA 02109, US
4960668	07449253	1002190	1202/069	130 WATER STREET, BOSTON, MA 02109, US
4968162	07363459	1106090	0606/06	130 WATER STREET, BOSTON, MA 02109, US
4973442	07098710	1127190	0926/148	130 WATER STREET, BOSTON, MA 02109, US
4983482	07030043	1010891	0602/088	130 WATER STREET, BOSTON, MA 02109, US
4991155	07495891	0205091	031/990	130 WATER STREET, BOSTON, MA 02109, US
4994235	074355760	0219191	1103/088	130 WATER STREET, BOSTON, MA 02109, US
5002017	075575760	0326691	0562288	130 WATER STREET, BOSTON, MA 02109, US
5004525	07438020	0402091	1127066	130 WATER STREET, BOSTON, MA 02109, US
5007990	07153357	0416191	0828/088	130 WATER STREET, BOSTON, MA 02109, US
5008286	07401612	0416191	0828/088	130 WATER STREET, BOSTON, MA 02109, US
5008769	074664222	0416191	0411290	130 WATER STREET, BOSTON, MA 02109, US
5011834	07331858	0407091	0414/089	130 WATER STREET, BOSTON, MA 02109, US
5012953	07420606	0507091	1112/189	130 WATER STREET, BOSTON, MA 02109, US
5017105	07570147	0521191	0882090	130 WATER STREET, BOSTON, MA 02109, US
5017577	07383247	0521191	071/989	130 WATER STREET, BOSTON, MA 02109, US
5022621	07464141	0416191	0316/90	130 WATER STREET, BOSTON, MA 02109, US
5026809	07361019	0626291	0602/88	130 WATER STREET, BOSTON, MA 02109, US
5028524	07181210	0702091	0413/88	130 WATER STREET, BOSTON, MA 02109, US
5029628	07214543	0827091	1013/89	130 WATER STREET, BOSTON, MA 02109, US
5039689	07433484	0813391	1102/89	130 WATER STREET, BOSTON, MA 02109, US
5040765	07525123	0820091	0547790	130 WATER STREET, BOSTON, MA 02109, US
5042828	07406055	0827191	0925/189	130 WATER STREET, BOSTON, MA 02109, US
5042982	07328073	0827191	0221/89	130 WATER STREET, BOSTON, MA 02109, US
5045536	07434545	0903091	1109/89	130 WATER STREET, BOSTON, MA 02109, US
5046647	07571032	0910191	0822/90	130 WATER STREET, BOSTON, MA 02109, US
5049461	07122965	0910191	1191/87	130 WATER STREET, BOSTON, MA 02109, US
5049671	07455538	0917191	1222289	130 WATER STREET, BOSTON, MA 02109, US
5049848	07442154	0917191	1129/89	130 WATER STREET, BOSTON, MA 02109, US
5051154	07471361	0924191	0129/90	130 WATER STREET, BOSTON, MA 02109, US
5053418	07494645	1100191	1211189	130 WATER STREET, BOSTON, MA 02109, US
5055164	07498418	1100891		

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50686117	075355/6	11/10/291	06/05/90	130 WATER STREET	BOSTON, MA	02/109	US
50686013	07471639	11/26/91	07/29/90	130 WATER STREET	BOSTON, MA	02/109	US
50686143	07278233	11/26/91	11/30/88	130 WATER STREET	BOSTON, MA	02/109	US
50701116	07652468	12/03/91	02/07/91	130 WATER STREET	BOSTON, MA	02/109	US
50703360	07531669	12/03/91	12/27/90	130 WATER STREET	BOSTON, MA	02/109	US
50757575	07628637	12/31/91	12/07/90	130 WATER STREET	BOSTON, MA	02/109	US
50788812	07442999	01/07/92	11/28/88	130 WATER STREET	BOSTON, MA	02/109	US
50791331	07653992	01/07/92	10/21/91	130 WATER STREET	BOSTON, MA	02/109	US
50792625	07665552	01/07/92	07/16/90	130 WATER STREET	BOSTON, MA	02/109	US
50825959	07411666	07/21/92	09/25/88	130 WATER STREET	BOSTON, MA	02/109	US
50843032	07650312	07/28/92	03/29/90	130 WATER STREET	BOSTON, MA	02/109	US
50843125	076202718	07/28/92	10/24/90	130 WATER STREET	BOSTON, MA	02/109	US
5087247	07573370	02/11/92	08/28/90	130 WATER STREET	BOSTON, MA	02/109	US
50893500	07697260	02/18/92	10/20/89	130 WATER STREET	BOSTON, MA	02/109	US
5091369	07653139	02/25/92	12/1/89	130 WATER STREET	BOSTON, MA	02/109	US
5092367	07496136	03/10/92	06/27/90	130 WATER STREET	BOSTON, MA	02/109	US
50934925	07644735	03/10/92	06/27/90	130 WATER STREET	BOSTON, MA	02/109	US
5095018	07674435	03/10/92	03/22/91	130 WATER STREET	BOSTON, MA	02/109	US
5095039	07533613	03/10/92	06/05/90	130 WATER STREET	BOSTON, MA	02/109	US
5096995	076787234	03/17/92	03/1/90	130 WATER STREET	BOSTON, MA	02/109	US
5097287	075892394	03/17/92	03/21/90	130 WATER STREET	BOSTON, MA	02/109	US
5099273	07673236	03/24/92	03/26/91	130 WATER STREET	BOSTON, MA	02/108	US
5100832	07492927	03/31/92	08/30/90	130 WATER STREET	BOSTON, MA	02/109	US
5104305	07579506	04/14/92	06/30/90	130 WATER STREET	BOSTON, MA	02/109	US
5104807	076860337	04/14/92	04/28/91	130 WATER STREET	BOSTON, MA	02/109	US
5104937	07722334	04/14/92	06/28/91	130 WATER STREET	BOSTON, MA	02/109	US
5105335	07534181	04/14/92	06/06/90	130 WATER STREET	BOSTON, MA	02/109	US
5105603	07621568	04/21/92	12/03/90	130 WATER STREET	BOSTON, MA	02/109	US
5106454	07607548	04/21/92	06/09/89	130 WATER STREET	BOSTON, MA	02/109	US
5106949	07407465	04/21/92	09/15/89	130 WATER STREET	BOSTON, MA	02/108	US
5108064	07608989	04/28/92	11/06/90	130 WATER STREET	BOSTON, MA	02/109	US
5108650	075949172	04/28/92	10/10/90	130 WATER STREET	BOSTON, MA	02/109	US
5109120	07564707	04/28/92	06/09/89	130 WATER STREET	BOSTON, MA	02/109	US
5109786	07653241	05/05/92	12/21/90	130 WATER STREET	BOSTON, MA	02/109	US
5112434	07672402	05/12/92	03/20/91	130 WATER STREET	BOSTON, MA	02/109	US
5112669	07622634	05/12/92	05/12/90	130 WATER STREET	BOSTON, MA	02/109	US
5112835	07443930	05/12/92	11/21/89	130 WATER STREET	BOSTON, MA	02/109	US
5120065	07453068	06/09/92	02/08/91	130 WATER STREET	BOSTON, MA	02/109	US
5120578	07731332	06/09/92	07/29/91	130 WATER STREET	BOSTON, MA	02/109	US
5121114	076258073	06/09/92	05/29/90	130 WATER STREET	BOSTON, MA	02/109	US
5128230	07644752	07/07/92	01/23/91	130 WATER STREET	BOSTON, MA	02/109	US
5130410	07661121	07/14/92	02/27/91	130 WATER STREET	BOSTON, MA	02/109	US
5130414	076787464	07/28/92	03/20/91	130 WATER STREET	BOSTON, MA	02/109	US
5130783	07565671	08/04/92	11/29/89	130 WATER STREET	BOSTON, MA	02/109	US
5133865	07499889	08/04/92	03/27/90	130 WATER STREET	BOSTON, MA</		

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5161105	0754439	1110392	0662756	30 WATER STREET	BOSTON, MA 02109	US
5161873	07841367	1111092	0225262	30 WATER STREET	BOSTON, MA 02109	US
5162786	07619239	1111092	1112690	30 WATER STREET	BOSTON, MA 02109	US
5163470	07621517	1111792	1203191	30 WATER STREET	BOSTON, MA 02109	US
5164410	07714435	1111792	0611304	30 WATER STREET	BOSTON, MA 02109	US
5164485	07547948	1111792	0703990	30 WATER STREET	BOSTON, MA 02109	US
5166731	07654324	1112492	0271291	30 WATER STREET	BOSTON, MA 02109	US
5166811	07641146	1112492	0715191	30 WATER STREET	BOSTON, MA 02109	US
5171020	07574485	1208092	0682890	30 WATER STREET	BOSTON, MA 02109	US
5171736	07421566	1215192	1016168	30 WATER STREET	BOSTON, MA 02109	US
5173613	07893561	1221992	0600392	30 WATER STREET	BOSTON, MA 02109	US
5175079	07705680	1219192	0882691	30 WATER STREET	BOSTON, MA 02109	US
5175193	07758639	1229192	0931590	30 WATER STREET	BOSTON, MA 02109	US
5175793	07473238	1229192	0731590	30 WATER STREET	BOSTON, MA 02109	US
5177527	07631718	1100593	1122190	30 WATER STREET	BOSTON, MA 02109	US
5177539	07716998	0700593	1016161	30 WATER STREET	BOSTON, MA 02109	US
5178956	07416555	0111293	1000399	30 WATER STREET	BOSTON, MA 02109	US
5179866	07902348	0112693	0619192	30 WATER STREET	BOSTON, MA 02109	US
5181106	07727652	0126193	0320291	30 WATER STREET	BOSTON, MA 02109	US
5184196	07653573	0202093	0600590	30 WATER STREET	BOSTON, MA 02109	US
5184812	07697329	0202093	0506091	30 WATER STREET	BOSTON, MA 02109	US
5192644	07604581	0309093	1029090	30 WATER STREET	BOSTON, MA 02109	US
5193082	07502104	0309093	0325090	30 WATER STREET	BOSTON, MA 02109	US
5194486	07758671	0316193	0801004	30 WATER STREET	BOSTON, MA 02109	US
5194890	07523591	0316193	0515190	30 WATER STREET	BOSTON, MA 02109	US
5198642	07540105	0303093	0861919	30 WATER STREET	BOSTON, MA 02109	US
5200783	07750575	0406093	0828191	30 WATER STREET	BOSTON, MA 02109	US
5201652	07686321	0411393	0551992	30 WATER STREET	BOSTON, MA 02109	US
5202222	07686321	0411393	0301091	30 WATER STREET	BOSTON, MA 02109	US
5203435	07488010	0412093	0306090	30 WATER STREET	BOSTON, MA 02109	US
5204380	07715150	0412093	0862919	30 WATER STREET	BOSTON, MA 02109	US
5204392	07745492	0420093	0861419	30 WATER STREET	BOSTON, MA 02109	US
5206435	07767134	0427193	0942719	30 WATER STREET	BOSTON, MA 02109	US
5206634	07771454	0542793	0962091	30 WATER STREET	BOSTON, MA 02109	US
5207888	07719978	0504093	0962491	30 WATER STREET	BOSTON, MA 02109	US
5207892	07696933	0505493	0462261	30 WATER STREET	BOSTON, MA 02109	US
5210000	07533612	0511193	0206092	30 WATER STREET	BOSTON, MA 02109	US
5210029	07533612	0511193	0618390	30 WATER STREET	BOSTON, MA 02109	US
5216111	07700962	0601093	1022090	30 WATER STREET	BOSTON, MA 02109	US
5216264	07759933	0601093	0916191	30 WATER STREET	BOSTON, MA 02109	US
5216414	07613611	0601093	1115190	30 WATER STREET	BOSTON, MA 02109	US
5219655	07833972	0501593	0201919	30 WATER STREET	BOSTON, MA 02109	US
5225584	07680763	0706093	0404391	30 WATER STREET	BOSTON, MA 02109	US
5225962	07788462	0612993	1106091	30 WATER STREET	BOSTON, MA 02109	US
5229362	07788462	0612993	1106091	30 WATER STREET	BOSTON, MA 02109	US
5229535	07718102	0706093	0708092	30 WATER STREET	BOSTON, MA 02109	US
5230349	07787320	0803093	1104091	30 WATER STREET	BOSTON, MA 02109	US
5235130	07948138	0810093	0918192	30 WATER STREET	BOSTON, MA 02109	US
5237439	07954724	0817193	0303092	30 WATER STREET	BOSTON, MA 02109	US
5238550	07798754					

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52468399	07482266	0928893	0220290	130 WATER STREET, BOSTON, MA 02109, US
52502396	07803866	1005593	1122791	130 WATER STREET, BOSTON, MA 02109, US
52530393	07083980	1001293	1029291	130 WATER STREET, BOSTON, MA 02109, US
52524165	07978045	1001993	1118192	130 WATER STREET, BOSTON, MA 02109, US
52564166	079505618	1026993	0406990	130 WATER STREET, BOSTON, MA 02109, US
52600720	07675306	1109993	0326691	130 WATER STREET, BOSTON, MA 02109, US
52620041	079893377	1116693	1241792	130 WATER STREET, BOSTON, MA 02109, US
52623280	07862343	1116693	0402992	130 WATER STREET, BOSTON, MA 02109, US
52623003	07959451	1116693	1041190	130 WATER STREET, BOSTON, MA 02109, US
52625658	076681324	1116693	0320491	130 WATER STREET, BOSTON, MA 02109, US
52625654	078992454	1116693	0602990	130 WATER STREET, BOSTON, MA 02109, US
52631333	07544836	1116693	0627990	130 WATER STREET, BOSTON, MA 02109, US
52628241	07833258	1227693	0220292	130 WATER STREET, BOSTON, MA 02109, US
5271867	07821581	1227193	0127292	130 WATER STREET, BOSTON, MA 02109, US
5276480	07800832	1010494	0511192	130 WATER STREET, BOSTON, MA 02109, US
5283477	07851257	0208194	0313492	130 WATER STREET, BOSTON, MA 02109, US
5285420	07895487	0208194	0525492	130 WATER STREET, BOSTON, MA 02109, US
5286987	07998709	0215594	1126191	130 WATER STREET, BOSTON, MA 02109, US
5287145	08045623	0215594	0409393	130 WATER STREET, BOSTON, MA 02109, US
5290077	07917827	0301194	0712192	130 WATER STREET, BOSTON, MA 02109, US
52931233	077659292	0302294	0993091	130 WATER STREET, BOSTON, MA 02109, US
5296053	07944008	0302294	0911192	130 WATER STREET, BOSTON, MA 02109, US
53068339	07822629	0505394	0717192	130 WATER STREET, BOSTON, MA 02109, US
5309095	07964934	0503194	1022292	130 WATER STREET, BOSTON, MA 02109, US
5312096	080202098	0507194	0302993	130 WATER STREET, BOSTON, MA 02109, US
5312334	08001112	0507194	0105993	130 WATER STREET, BOSTON, MA 02109, US
5312928	07654104	0517194	0221191	130 WATER STREET, BOSTON, MA 02109, US
5312844	07999897	0517194	1224292	130 WATER STREET, BOSTON, MA 02109, US
5314055	07935644	0524294	0825292	130 WATER STREET, BOSTON, MA 02109, US
5314789	07770016	0524294	1001991	130 WATER STREET, BOSTON, MA 02109, US
5316683	07873692	0531194	0402192	130 WATER STREET, BOSTON, MA 02109, US
5318674	07847417	0607194	0305992	130 WATER STREET, BOSTON, MA 02109, US
5319170	07964079	0607194	1020292	130 WATER STREET, BOSTON, MA 02109, US
5321120	080809291	0604194	0126393	130 WATER STREET, BOSTON, MA 02109, US
5323052	07975916	0627194	1113392	130 WATER STREET, BOSTON, MA 02109, US
5326680	07940443	0705194	0804092	130 WATER STREET, BOSTON, MA 02109, US
5328686	07832845	0705194	0207092	130 WATER STREET, BOSTON, MA 02109, US
5332843	07971499	0702594	0721292	130 WATER STREET, BOSTON, MA 02109, US
5334356	07934570	0802994	0824292	130 WATER STREET, BOSTON, MA 02109, US
5335350	07968651	0809194	1204292	130 WATER STREET, BOSTON, MA 02109, US
5336689	07943548	0803094	0841193	130 WATER STREET, BOSTON, MA 02109, US
5342222	07964943	0803094	0917192	130 WATER STREET, BOSTON, MA 02109, US
5344947	08005938	0906094	0515393	130 WATER STREET, BOSTON, MA 02109, US
5345676	07975279	0913194	1112192	130 WATER STREET, BOSTON, MA 02109, US
5347343	08088876	0913194	041394	130 WATER STREET, BOSTON, MA 02109, US
5350637	07927806	0927194	0807093	130 WATER STREET, BOSTON, MA 02109, US
5353057	0818223	1004094	1207993	130 WATER STREET, BOSTON, MA 02109, US
5353221	07818923	1004094	0511092	130 WATER STREET, BOSTON, MA 02109, US
5354497	08049289	1011194	0419393	130 WATER STREET, BOSTON, MA 02109, US
5357129	08045725	1018194	1124393	130 WATER STREET, BOSTON, MA 02109, US
5358619	08047469	1025194	0941393	130 WATER STREET, BOSTON, MA 02109, US
5359460	08017484	1025194	0212193	130 WATER STREET, BOSTON, MA 02109, US
5359660	08041499	1115194	0862293	130 WATER STREET, BOSTON, MA 02109

ATTN: DAVID G. CONLIN, DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ROBERT F. O'CONNELL, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes
ROBERT L. GOLDBERG, ESQ., DIKE, BRONSTEIN,	Yes	Yes
LINDA M. BUCKLEY, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ROBERT F. O'CONNELL, ESQ., DIKE, BRONSTEIN,	Yes	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN, ET AL	Yes	Yes
ROBERT M. ASHER, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ATTN: DAVID G. CONLIN, DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
PETER J. MANUS, DIKE, BRONSTEIN, ROBERTS, &	Yes	Yes
ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes
PETER J. MANUS, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERT &	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN ET AL,	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes
PETER J. MANUS, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
HENRY D. PAHL, JR., ESQ., DIKE, BRONSTEIN,	Yes	Yes
HENRY D. PAHL, JR., ESQ., DIKE, BRONSTEIN,	Yes	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes

[illegible]

53669570	08792360	1126994	1114931	130 WATER STREET	BOSTON	MA	02109	US	53669570
5374373	08650054	1122094	0505693	130 WATER STREET	BOSTON	MA	02109	US	5374373
5378810	079484105	0100399	0927192	130 WATER STREET	BOSTON	MA	02109	US	5378810
53824519	087040751	0117195	0113393	130 WATER STREET	BOSTON	MA	02109	US	53824519
5384329	07197658	0121495	0507093	130 WATER STREET	BOSTON	MA	02109	US	5384329
5384480	08060923	0127495	012293	130 WATER STREET	BOSTON	MA	02109	US	5384480
5385645	08081039	0131195	0622293	130 WATER STREET	BOSTON	MA	02109	US	5385645
5385660	08142782	0131195	1022293	130 WATER STREET	BOSTON	MA	02109	US	5385660
5389203	08115917	021495	0960193	130 WATER STREET	BOSTON	MA	02109	US	5389203
5400483	08028778	032895	0303093	130 WATER STREET	BOSTON	MA	02109	US	5400483
5403661	07733421	040495	0210192	130 WATER STREET	BOSTON	MA	02109	US	5403661
5405651	07869969	041195	0416192	130 WATER STREET	BOSTON	MA	02109	US	5405651
5415171	08084411	051695	0623993	130 WATER STREET	BOSTON	MA	02109	US	5415171
5416071	07909160	051695	0706192	130 WATER STREET	BOSTON	MA	02109	US	5416071
5416346	08201181	051695	0224194	130 WATER STREET	BOSTON	MA	02109	US	5416346
5420179	07941121	0530095	0202992	130 WATER STREET	BOSTON	MA	02109	US	5420179
5422363	08167479	0606095	1121593	130 WATER STREET	BOSTON	MA	02109	US	5422363
5428584	08097399	0627195	0724393	130 WATER STREET	BOSTON	MA	02109	US	5428584
5434151	07933991	0711895	0824392	130 WATER STREET	BOSTON	MA	02109	US	5434151
5434246	08033099	0711895	0316193	130 WATER STREET	BOSTON	MA	02109	US	5434246
5438130	08084928	0801195	0115193	130 WATER STREET	BOSTON	MA	02109	US	5438130
5441503	08181886	081595	0114194	130 WATER STREET	BOSTON	MA	02109	US	5441503
5464939	07942358	1101795	0909092	130 WATER STREET	BOSTON	MA	02109	US	5464939
5471651	07919204	112895	1113192	130 WATER STREET	BOSTON	MA	02109	US	5471651
5478140	071915025	1122695	0715192	130 WATER STREET	BOSTON	MA	02109	US	5478140
5478971	08283227	1122695	0729194	130 WATER STREET	BOSTON	MA	02109	US	5478971
5482706	08043402	0103096	0416193	130 WATER STREET	BOSTON	MA	02109	US	5482706
5486549	08350497	0305096	1206194	130 WATER STREET	BOSTON	MA	02109	US	5486549
5486934	08300738	0305096	0902194	130 WATER STREET	BOSTON	MA	02109	US	5486934
5500750	08216628	0319196	0323194	130 WATER STREET	BOSTON	MA	02109	US	5500750
5521581	08102411	052896	0805093	130 WATER STREET	BOSTON	MA	02109	US	5521581
5531328	08314331	0610496	0928194	130 WATER STREET	BOSTON	MA	02109	US	5531328
5537634	08290843	0618196	0819194	130 WATER STREET	BOSTON	MA	02109	US	5537634
5539741	08111552	062596	0907093	130 WATER STREET	BOSTON	MA	02109	US	5539741
5538667	08301604	0711896	01029194	130 WATER STREET	BOSTON	MA	02109	US	5538667
5538623	08011457	0711896	01029193	130 WATER STREET	BOSTON	MA	02109	US	5538623
5536640	08148574	0711896	1029393	130 WATER STREET	BOSTON	MA	02109	US	5536640
5539956	08319809	0711696	1029094	130 WATER STREET	BOSTON	MA	02109	US	5539956
5539398	08327386	0723196	1027194	130 WATER STREET	BOSTON	MA	02109	US	5539398
5541231	08296232	0723096							

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5619516	08363261	04/08/97	12/23/94	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS	Yes	Yes
5621706	08343007	04/15/97	11/21/94	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5622926	08593535	04/22/97	01/24/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5622966	08464312	04/22/97	06/05/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5624430	08345939	04/28/97	11/28/94	130 WATER STREET, BOSTON, MA 02109, US	PETER J. MANUS, DIKE BRONSTEIN, ROBERTS	Yes	Yes
5637623	08464229	06/10/97	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5639664	08376296	06/17/97	01/23/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5639781	08495814	06/17/97	06/27/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID S RESNICK, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5639862	08446198	06/17/97	05/19/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5641056	08450006	06/24/97	05/25/95	130 WATER STREET, BOSTON, MA 02109, US	WILLIAM J DALEY JR, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5642300	08592133	06/24/97	01/25/96	130 WATER STREET, BOSTON, MA 02109, US	HENRY D PAHL JR, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5652225	08675523	07/29/97	07/03/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID S RESNICK, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5652669	08464123	07/29/97	06/05/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5658412	08284511	08/19/97	08/08/94	130 WATER STREET, BOSTON, MA 02109, US	DONALD BROWN, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5670519	08463420	09/23/97	06/05/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5672608	08343829	09/30/97	11/22/94	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5679550	08551171	10/21/97	10/31/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5681861	08466263	10/28/97	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5686495	08466031	11/11/97	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5688789	08450155	11/18/97	05/26/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5689302	08721755	11/18/97	09/30/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5693686	07971842	12/16/97	07/21/92	130 WATER STREET, BOSTON, MA 02109, US	MILTON OLIVER, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5702642	08797348	12/30/97	02/11/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5702824	08440310	12/30/97	04/05/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5710148	08611465	01/20/98	03/04/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERT &	Yes	Yes
5712163	08412982	01/27/98	03/28/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5714238	08757255	02/03/98	11/27/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5714349	08688190	02/03/98	06/05/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5716356	08617838	02/10/98	05/17/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5725527	08625405	03/10/98	03/27/96	130 WATER STREET, BOSTON, MA 02109, US	GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes
5728552	08600545	03/12/98	02/25/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5731111	08823871	03/24/98	03/25/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5741661	08463866	04/21/98	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5744960	086895174	04/28/98	08/08/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5760213	08806100	05/12/98	02/25/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5760371	08471570	05/12/98	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN, ROBERTS &	Yes	Yes
5761146	08754745	05/12/98	11/21/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5763171	08727532	05/19/98	10/23/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5766344	08673268	05/26/98	06/28/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5769796	08569973	06/02/98	12/08/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5763681	08086702	06/09/98	07/02/93	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5767162	08470345	06/16/98	06/06/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5762807	08646499	07/21/98	10/20/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5766194	08369130	07/28/98	01/05/95	130 WATER STREET, BOSTON, MA 02109, US	PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5785930	0844451	08/25/98	05/22/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5800565	08737018	09/01/98	10/23/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5800962	08685764	09/01/98	07/24/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5801147	08766725	09/01/98	12/13/96	130 WATER STREET, BOSTON, MA 02109, US	PETER F CORLESS	Yes	Yes
5801864	08727087	09/01/98	10/08/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5804435	08741335	09/08/98	10/29/96	130 WATER STREET, BOSTON, MA 02109, US	PETER F CORLESS	Yes	Yes
5807235	08709335	09/15/98	09/27/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS	Yes	Yes
5830739	08833718	11/03/98	11/10/94	130 WATER STREET, BOSTON, MA 02109, US	GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes
583737	08485566	11/17/98	06/07/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
5846413	08638116	12/08/98	04/26/96	130 WATER STREET, BOSTON, MA 02109, US	PETER J MANUS, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5846562	08831490	12/08/98	03/28/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
5847006	08454927	12/08/98	05/31/95	130 WATER STREET, BOSTON, MA 02109, US	DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes

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5589779	06629748	01/11/299	12/05/95	130 WATER STREET	BOSTON, MA	02109, US
55899243	06629763	01/11/299	09/15/95	130 WATER STREET	BOSTON, MA	02109, US
55899441	066044753	01/26/99	03/19/98	130 WATER STREET	BOSTON, MA	02109, US
55860357	08229955	02/02/99	01/13/97	130 WATER STREET	BOSTON, MA	02109, US
55873878	08841156	02/02/99	04/29/97	130 WATER STREET	BOSTON, MA	02109, US
5874247	088282877	02/23/99	06/26/97	130 WATER STREET	BOSTON, MA	02109, US
5874277	08833099	02/23/99	08/12/97	130 WATER STREET	BOSTON, MA	02109, US
5876713	08811445	02/02/99	08/12/97	130 WATER STREET	BOSTON, MA	02109, US
58803075	08680554	03/16/99	07/09/96	130 WATER STREET	BOSTON, MA	02109, US
5880374	08665646	03/16/99	06/18/96	130 WATER STREET	BOSTON, MA	02109, US
5886141	08465794	03/23/99	06/06/95	130 WATER STREET	BOSTON, MA	02109, US
5888760	083843634	03/30/99	04/10/97	130 WATER STREET	BOSTON, MA	02109, US
5891074	06697327	04/06/99	10/02/98	130 WATER STREET	BOSTON, MA	02109, US
5989126	06969662	04/06/99	11/13/97	130 WATER STREET	BOSTON, MA	02109, US
59899910	08787300	05/04/99	01/20/97	130 WATER STREET	BOSTON, MA	02109, US
5990490	08945466	05/18/99	01/24/97	130 WATER STREET	BOSTON, MA	02109, US
5906666	08765395	06/01/99	01/06/97	130 WATER STREET	BOSTON, MA	02109, US
5911697	08932813	06/15/99	12/18/97	130 WATER STREET	BOSTON, MA	02109, US
5919687	087241104	07/06/99	12/24/96	130 WATER STREET	BOSTON, MA	02109, US
5928214	086869105	07/13/99	06/04/97	130 WATER STREET	BOSTON, MA	02109, US
5922772	08458009	07/13/99	06/02/95	130 WATER STREET	BOSTON, MA	02109, US
5932059	08956078	08/03/99	10/12/97	130 WATER STREET	BOSTON, MA	02109, US
5936494	09045459	08/10/99	03/20/98	130 WATER STREET	BOSTON, MA	02109, US
5947399	08715348	08/07/99	07/14/98	130 WATER STREET	BOSTON, MA	02109, US
5953079	086745986	09/01/99	08/20/98	130 WATER STREET	BOSTON, MA	02109, US
5959392	09047151	09/27/99	03/24/98	130 WATER STREET	BOSTON, MA	02109, US
5959507	08439975	09/27/99	06/02/95	130 WATER STREET	BOSTON, MA	02109, US
5959667	08820700	09/27/99	05/13/98	130 WATER STREET	BOSTON, MA	02109, US
5959691	088203061	09/28/99	12/01/98	130 WATER STREET	BOSTON, MA	02109, US
59599148	08828472	09/28/99	03/31/97	130 WATER STREET	BOSTON, MA	02109, US
59599455	08944263	09/28/99	10/06/97	130 WATER STREET	BOSTON, MA	02109, US
5961462	090166325	10/12/99	05/05/98	130 WATER STREET	BOSTON, MA	02109, US
5965255	09142304	10/12/99	09/03/98	130 WATER STREET	BOSTON, MA	02109, US
5971061	09158439	10/26/99	09/22/98	130 WATER STREET	BOSTON, MA	02109, US
5972031	089363403	10/26/99	09/25/97	130 WATER STREET	BOSTON, MA	02109, US
5972457	08978988	10/26/99	11/26/97	130 WATER STREET	BOSTON, MA	02109, US
5972928	089896262	10/26/99	12/24/97	130 WATER STREET	BOSTON, MA	02109, US
5976499	08714122	11/02/99	09/04/98	130 WATER STREET	BOSTON, MA	02109, US
5980687	08144882	11/09/99	11/08/96	130 WATER STREET	BOSTON, MA	02109, US
5981197	09027655	11/09/99	02/23/98	130 WATER STREET	BOSTON, MA	02109, US
5986672	08814806	11/16/99	03/10/97	130 WATER STREET	BOSTON, MA	02109, US
59866972	08919927	11/16/99	02/05/97	130 WATER STREET	BOSTON, MA	02109, US
5989290	08952908	11/23/99	11/24/97	130 WATER STREET	BOSTON, MA	02109, US
5990175	09042931	11/23/99	03/17/98	130 WATER STREET	BOSTON, MA	02109, US
59995361	08781383	11/30/99	02/22/99	130 WATER STREET	BOSTON, MA	02109, US
59997498	09070960	12/07/99	05/07/98	130 WATER STREET	BOSTON, MA	02109, US
6001575	09045652	12/14/99	03/19/98	130 WATER STREET	BOSTON, MA	02109, US
6002017	09009959	12/14/99	01/21/98	130 WATER STREET	BOSTON, MA	02109, US
6002029	09089881	12/14/99	12/08/97	130 WATER STREET	BOSTON, MA	02109, US
6002317	09055451	12/14/99	03/13/98	130 WATER STREET	BOSTON, MA	02109, US
6005639	08917411	12/22/99	08/25/97	130 WATER STREET	BOSTON, MA	02109, US
6015596	0887925	01/10/00	06/17/97	130 WATER STREET	BOSTON, MA	02109, US
0013762	09049813	01/11/00	03/27/99	130 WATER STREET	BOSTON, MA	02109, US

DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & GEORGE W. NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
ERNEST V LINEK, DIKE BRONSTEIN ROBERTS AND GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
PETER F CORLESS	Yes	Yes	Yes
DAVID S RESNICK, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes	Yes	Yes
DAVID S RESNICK, DIKE BRONSTEIN ROBERTS, LINDA M BUCKLEY, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes	Yes	Yes
HENRY D PAHL, JR., DIKE BRONSTEIN ROBERT & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
HENRY D PAHL JR., DIKE BRONSTEIN ROBERTS & GEORGE W. NEUNER ESQ., DIKE BRONSTEIN	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & PETER J MANUS, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS CUSHMAN	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
PETER J MANUS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS CUSHMAN	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERT & PETER F CORLESS, ESQ., DIKE, BRONSTEIN, JOHN L WELCH, DIKE BRONSTEIN ROBERTS & MILTON OLIVER, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes

6013164	06901069.3	0111.1300	107.2957	130 WATER STREET	BOSTON, MA	02.109	US
6015552	06901069.1	0111.1300	087.1397	130 WATER STREET	BOSTON, MA	02.109	US
6017588	098020.55	01725.00	0272.588	130 WATER STREET	BOSTON, MA	02.109	US
6027910	064511276	01725.00	0172.588	130 WATER STREET	BOSTON, MA	02.109	US
6028533	0650000314	0270.00	0130.265	130 WATER STREET	BOSTON, MA	02.109	US
6025355	06868399	0271.500	057.957	130 WATER STREET	BOSTON, MA	02.109	US
6025467	090644536	0271.500	053.198	130 WATER STREET	BOSTON, MA	02.109	US
6030418	068064149	0272.000	053.168	130 WATER STREET	BOSTON, MA	02.109	US
6034217	06828917	03707.00	091.267	130 WATER STREET	BOSTON, MA	02.109	US
6042714	069015158	0328.00	071.2938	130 WATER STREET	BOSTON, MA	02.109	US
6046428	09112126	0470.00	07.0938	130 WATER STREET	BOSTON, MA	02.109	US
6049148	09166634	0471.100	0472.98	130 WATER STREET	BOSTON, MA	02.109	US
6051026	069070643	0471.800	0470.58	130 WATER STREET	BOSTON, MA	02.109	US
6052870	09144142	04125.00	0907.198	130 WATER STREET	BOSTON, MA	02.109	US
6053441	069292367	0425.00	05.0492	130 WATER STREET	BOSTON, MA	02.109	US
6053771	07894771	05620.00	06.1057	130 WATER STREET	BOSTON, MA	02.109	US
6057934	06325176	0502.00	0607.399	130 WATER STREET	BOSTON, MA	02.109	US
6068490	068872417	0523.00	06.0799	130 WATER STREET	BOSTON, MA	02.109	US
6068980	09157349	0553.00	09.1898	130 WATER STREET	BOSTON, MA	02.109	US
6071959	06617700	0676.00	06.0555	130 WATER STREET	BOSTON, MA	02.109	US
6076572	06251601	0676.00	06.0595	130 WATER STREET	BOSTON, MA	02.109	US
6087346	06854362	0771.100	0272.196	130 WATER STREET	BOSTON, MA	02.109	US
6090717	09308517	0718.00	052.290	130 WATER STREET	BOSTON, MA	02.109	US
60967124	06956093	08610.00	10.2397	130 WATER STREET	BOSTON, MA	02.109	US
6103982	09105678	0871.500	062.636	130 WATER STREET	BOSTON, MA	02.109	US
6106526	06873156	0892.00	07.2898	130 WATER STREET	BOSTON, MA	02.109	US
6110891	06411821	08229.00	08.2898	130 WATER STREET	BOSTON, MA	02.109	US
6110909	06043265	08929.00	0371.268	130 WATER STREET	BOSTON, MA	02.109	US
6120227	06346818	091.900	07.0759	130 WATER STREET	BOSTON, MA	02.109	US
6121057	069067938	091.900	05.1388	130 WATER STREET	BOSTON, MA	02.109	US
6121246	06845998	094.700	10.2050	130 WATER STREET	BOSTON, MA	02.109	US
6132666	06715988	1071.700	10.2050	130 WATER STREET	BOSTON, MA	02.109	US
6132988	08738168	1071.700	10.2566	130 WATER STREET	BOSTON, MA	02.109	US
6133302	069037327	1071.700	030.938	130 WATER STREET	BOSTON, MA	02.109	US
6136024	06319527	10274.00	06.0499	130 WATER STREET	BOSTON, MA	02.109	US
6143391	06482984	1107.000	09.2839	130 WATER STREET	BOSTON, MA	02.109	US
6147051	06861096	1114.400	11.2195	130 WATER STREET	BOSTON, MA	02.109	US
6147063	06458741	1114.400	06.0295	130 WATER STREET	BOSTON, MA	02.109	US
6147845	06287979	1171.400	04.0759	130 WATER STREET	BOSTON, MA	02.109	US
6150176	06275476	1172.100	0322.99	130 WATER STREET	BOSTON, MA	02.109	US
6151363	06893132	1172.100	077.5197	130 WATER STREET	BOSTON, MA	02.109	US
6153064	06319863	11728.00	06.0295	130 WATER STREET	BOSTON, MA	02.109	US
6153368	06415610	11728.00	06.0699	130 WATER STREET	BOSTON, MA	02.109	US
6155331	06571838	1205.00	05.1796	130 WATER STREET	BOSTON, MA	02.109	US
6156071	09041422	1205.00	031.298	130 WATER STREET	BOSTON, MA	02.109	US
6156614	09204979	1					

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6197220	09031376	02272701	07127398	130 WATER STREET, BOSTON, MA 02109, US
6194290	09891068	03060601	00713369	130 WATER STREET, BOSTON, MA 02109, US
6204278	09885824	03200201	05419197	130 WATER STREET, BOSTON, MA 02109, US
6206701	09352599	03277701	07113339	130 WATER STREET, BOSTON, MA 02109, US
6207431	09182983	03272701	10260398	130 WATER STREET, BOSTON, MA 02109, US
6218367	09395843	04171701	09414399	130 WATER STREET, BOSTON, MA 02109, US
6221355	09280966	05242401	12120498	130 WATER STREET, BOSTON, MA 02109, US
6228324	09176114	05080801	11123398	130 WATER STREET, BOSTON, MA 02109, US
6228889	09040331	05058001	06625599	130 WATER STREET, BOSTON, MA 02109, US
6229422	09444881	05080801	11122399	130 WATER STREET, BOSTON, MA 02109, US
6231355	09331454	05150101	06621599	130 WATER STREET, BOSTON, MA 02109, US
6232288	09801674	05150101	04415398	130 WATER STREET, BOSTON, MA 02109, US
6232445	09860190	05150101	10262997	130 WATER STREET, BOSTON, MA 02109, US
6235222	09465754	05222011	12068399	130 WATER STREET, BOSTON, MA 02109, US
6235374	09456785	05222011	12068399	130 WATER STREET, BOSTON, MA 02109, US
6235374	09233331	05222011	07119598	130 WATER STREET, BOSTON, MA 02109, US
6235878	09813014	05222011	09040497	130 WATER STREET, BOSTON, MA 02109, US
6236568	09470068	05222011	12222399	130 WATER STREET, BOSTON, MA 02109, US
6238065	09207073	05292001	12108498	130 WATER STREET, BOSTON, MA 02109, US
6241174	09308556	06050001	05202099	130 WATER STREET, BOSTON, MA 02109, US
6242198	09888494	06050001	07125398	130 WATER STREET, BOSTON, MA 02109, US
6251623	09329427	06262601	06470399	130 WATER STREET, BOSTON, MA 02109, US
6251869	09881878	06262601	11110399	130 WATER STREET, BOSTON, MA 02109, US
6251948	094680028	06262601	06060655	130 WATER STREET, BOSTON, MA 02109, US
6254598	09173918	07103001	10160399	130 WATER STREET, BOSTON, MA 02109, US
6258561	09421208	07103001	10202999	130 WATER STREET, BOSTON, MA 02109, US
6258787	09810539	07103001	07303697	130 WATER STREET, BOSTON, MA 02109, US
6263039	09477312	07170101	05204099	130 WATER STREET, BOSTON, MA 02109, US
6274235	09341088	08140101	06302099	130 WATER STREET, BOSTON, MA 02109, US
6274296	09550440	08140101	06060800	130 WATER STREET, BOSTON, MA 02109, US
6276939	09595422	08212001	05203000	130 WATER STREET, BOSTON, MA 02109, US
6277643	09351119	08212001	07171099	130 WATER STREET, BOSTON, MA 02109, US
6280773	09303953	08282001	05030399	130 WATER STREET, BOSTON, MA 02109, US
6282094	09549966	08282001	05410300	130 WATER STREET, BOSTON, MA 02109, US
6286454	09583161	09111001	05203000	130 WATER STREET, BOSTON, MA 02109, US
6286717	09423216	09111001	11020299	130 WATER STREET, BOSTON, MA 02109, US
6297875	09456703	10020101	12102999	130 WATER STREET, BOSTON, MA 02109, US
6298880	096627119	10090101	07272700	130 WATER STREET, BOSTON, MA 02109, US
6300457	09343445	10090101	11102299	130 WATER STREET, BOSTON, MA 02109, US
6300682	09547157	10230101	04411000	130 WATER STREET, BOSTON, MA 02109, US
6313343	09562517	11060101	01107000	130 WATER STREET, BOSTON, MA 02109, US
6316198	09582815	11130101	03418000	130 WATER STREET, BOSTON, MA 02109, US
6321885	09418314	11272701	10962299	130 WATER STREET, BOSTON, MA 02109, US
6339007	09424495	01101002	11172499	130 WATER STREET, BOSTON, MA 02109, US
6342208	09230777	01292002	03080899	130 WATER STREET, BOSTON, MA 02109, US
6348580	096537069	02190202	08243999	130 WATER STREET, BOSTON, MA 02109, US
6350560	09233539	02262601	08067000	130 WATER STREET, BOSTON, MA 02109, US
6352441	09553470	03050102	09530000	130 WATER STREET, BOSTON, MA 02109, US
6352827	09808494	03050102	08047000	130 WATER STREET, BOSTON, MA 02109, US
6353105	09314441	03050102	05119599	130 WATER STREET, BOSTON, MA 02109, US
6358993	09425582	03190202	11072299	130 WATER STREET, BOSTON, MA 02109, US
6365148	09239534	04020202	04140000	130 WATER STREET, B

GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
RONALD I EISENSTEIN, DIKE BRONSTEIN ROBERT F CORLESS, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND PETER F CORLESS	Yes
PETER F CORLESS	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & PETER J MAUWS, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
PETER F CORLESS	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & PETER F CORLESS	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
S Matthew Cairns, c/o Dike Bronstein Roberts & DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & PETER F CORLESS	Yes
David G Conlin, Dike Bronstein Roberts & Cushman LP	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN LLP	Yes
Dike Bronstein Roberts & Cushman	Yes
LINDA M BUCKLEY, DIKE BRONSTEIN ROBERTS & Peter F Corless	Yes
Peter F Corless	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
Dike Bronstein Roberts & Cushman LLP	Yes
GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS & DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & S. Matthew Cairns, Dike Bronstein Roberts & Cushman	Yes
GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS, GEORGE W NEUNER ESQ, DIKE BRONSTEIN	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS & PETER F CORLESS, DIKE BRONSTEIN ROBERTS & DAVID G CONLIN, DIKE BRONSTEIN ROBERTS AND S. Matthew Cairns, c/o Dike, Bronstein, Roberts & Dike Bronstein Roberts & Cushman LLP	Yes
Dike Bronstein Roberts & Cushman	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes

[illegible]

6363269	05490828	06507102	0125/00	130 Water Street, Boston, MA 02109	US
6391656	09190043	06571002	11/17/06	130 WATER STREET, BOSTON, MA 02109	US
6406828	09511726	06618102	02/22/00	130 Water Street, Boston, MA 02109	US
6420441	06049326	07116102	12/10/99	130 WATER STREET, BOSTON, MA 02109	US
6431603	09682619	06813102	04/04/01	130 Water Street, Boston, MA 02109	US
6437635	09552266	06820102	03/22/00	130 Water Street, Boston, MA 02109	US
6440642	09397301	06827102	09/15/99	130 WATER STREET, BOSTON, MA 02109	US
6455231	09331153	06274102	11/03/99	130 WATER STREET, BOSTON, MA 02109	US
	07475735		02/05/90	130 WATER STREET, BOSTON, MA 02109	US
	07521741		05/10/90	130 WATER STREET, BOSTON, MA 02109	US
	07907863		07/02/92	130 WATER STREET, BOSTON, MA 02109	US
	08088236		07/07/93	130 WATER STREET, BOSTON, MA 02109	US
	08091389		07/23/93	130 WATER STREET, BOSTON, MA 02109	US
	08387830		02/16/95	130 WATER STREET, BOSTON, MA 02109	US
	08446230		11/28/99	130 WATER STREET, BOSTON, MA 02109	US
	08694906		08/09/96	130 WATER STREET, BOSTON, MA 02109	US
	08690515		06/81/97	130 WATER STREET, BOSTON, MA 02109	US
	08623155		08/04/97	130 WATER STREET, BOSTON, MA 02109	US
	08657358		10/23/97	130 WATER STREET, BOSTON, MA 02109	US
	09073305		05/05/98	130 WATER STREET, BOSTON, MA 02109	US
	09076370		05/11/98	130 WATER STREET, BOSTON, MA 02109	US
	09102446		06/82/99	130 WATER STREET, BOSTON, MA 02109	US
	09120579		07/22/98	130 WATER STREET, BOSTON, MA 02109	US
	09155635		07/09/99	130 WATER STREET, BOSTON, MA 02109	US
	09168028		11/02/98	130 WATER STREET, BOSTON, MA 02109	US
	09171545		07/26/99	130 WATER STREET, BOSTON, MA 02109	US
	09293954		04/16/99	130 WATER STREET, BOSTON, MA 02109	US
	09300639		06/27/99	130 WATER STREET, BOSTON, MA 02109	US
	09330417		06/81/99	130 WATER STREET, BOSTON, MA 02109	US
	09347360		07/06/99	130 WATER STREET, BOSTON, MA 02109	US
	09366001		07/23/99	130 WATER STREET, BOSTON, MA 02109	US
	09376635		06/81/99	130 WATER STREET, BOSTON, MA 02109	US
	09431763		11/00/79	130 WATER STREET, BOSTON, MA 02109	US
	09441934		10/15/99	130 WATER STREET, BOSTON, MA 02109	US
	09425146		10/21/99	130 WATER STREET, BOSTON, MA 02109	US
	09471629		11/22/96	130 WATER STREET, BOSTON, MA 02109	US
	09489383		01/21/00	130 Water Street, Boston, MA 02109	US
	09506210		02/17/00	130 Water Street, Boston, MA 02109	US
	09506594		07/17/00	130 WATER STREET, BOSTON, MA 02109	US
	09523776		03/31/00	130 Water Street, Boston, MA 02109	US
	09593367		03/29/00	130 Water Street, Boston, MA 02109	US
	09594219		04/04/00	130 Water Street, Boston, MA 02109	US
	09546811		04/01/00	130 Water Street, Boston, MA 02109	US
	09641941		04/11/00	130 Water Street, Boston, MA 02109	US
	09651965		04/19/00	130 Water Street, Boston, MA 02109	US
	09657483		04/24/00	130 Water Street, Boston, MA 02109	US
	09660614		04/25/00	130 Water Street, Boston, MA 02109	US
	09665612		05/02/00	130 WATER STREET, BOSTON, MA 02109	US
	09668106		05/10/00	130 Water Street, Boston, MA 02109	US
	09671119		05/12/00	130 Water Street, Boston, MA 02109	US
	09687947		06/06/00	130 Water Street, Boston, MA 02109	US
	09692754		06/21/00	130 Water Street, Boston, MA 02109	US
	09692893		07/29/00	130 Water Street, Boston, MA 02109	US
	09694198		08/25/00	130 Water Street, Boston, MA 02109	US
	09694802		08/25/00	130 Water Street, Boston, MA 02109	US
	09661746		09/14/00	130 Water Street, Boston, MA 02109	US
	09672915		09/28/00	130 Water Street, Boston, MA 02109	US

S. Matthew Cairns, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
GEORGE W NEUNER, DIKE BRONSTEIN ROBERT &	Yes	Yes	Yes
S. Matthew Cairns, c/o Dike, Bronstein, Roberts &	Yes	Yes	Yes
S MATTHEW CAIRNS, C/O DIKE BRONSTEIN	Yes	Yes	Yes
Dike, Bronstein, Roberts & Cushman, LLP	Yes	Yes	Yes
David G Corliss, Dike Bronstein Roberts & Cushman LP	Yes	Yes	Yes
S MATTHEW CAIRNS ESQ., C/O DIKE BRONSTEIN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes	Yes
ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
PETER J MANUS, DIKE BRONSTEIN ROBERTS AND	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
LINDA M BUCKLEY, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS AND CUSHMAN	Yes	Yes	Yes
PETER J MANUS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DAVID G CONLIN, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DIKE BRONSTEIN ROBERT & CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
PETER F CORLESS ESQ	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN LP	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
ROBERT L GOLDBERG, DIKE BRONSTEIN ROBERTS	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes	Yes
David G Conlin, Dike Bronstein Roberts & Cushman LP	Yes	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes	Yes
PETER F CORLESS, DIKE BRONSTEIN ROBERTS &	Yes	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes	Yes
Dike Bronstein Roberts	Yes	Yes	Yes
Linda M Buckley, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
Peter F Corliss, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
Christine C O'Day	Yes	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes	Yes
PETER F. CORLESS, DIKE BRONSTEIN, ROBERTS &	Yes	Yes	Yes
George W Neuner, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
Peter F Corliss, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
Jennifer K Holmes, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
George W Neuner	Yes	Yes	Yes
S Matthew Cairns, C/o Dike Bronstein Roberts &	Yes	Yes	Yes
Peter F Corliss, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
Peter F Corliss, Dike Bronstein Roberts & Cushman	Yes	Yes	Yes
EDWARDS & ANGEL, LLP, Dike Bronstein Roberts &	Yes	Yes	Yes
Edwards & Angell LLP	Yes	Yes	Yes

0961137	10/27/00	130 Water Street, Boston	MA 02109	US
0969637	10/27/00	130 Water Street, Boston	MA 02109	US
09911009	11/09/00	130 Water Street, Boston	MA 02109	US
0913694	11/15/00	130 Water Street, Boston	MA 02109	US
09116147	11/17/00	130 Water Street, Boston	MA 02109	US
09119316	12/11/00	130 Water Street, Boston	MA 02109	US
09721469	11/22/00	130 Water Street, Boston	MA 02109	US
09125414	11/29/00	130 Water Street, Boston	MA 02109	US
09725766	11/30/00	130 Water Street, Boston	MA 02109	US
09132043	12/07/00	130 Water Street, Boston	MA 02109	US
09738851	12/15/00	130 Water Street, Boston	MA 02109	US
09746851	1/22/00	130 Water Street, Boston	MA 02109	US
09750402	1/28/00	130 Water Street, Boston	MA 02109	US
09755905	1/05/01	130 Water Street, Boston	MA 02109	US
09756699	01/11/01	130 Water Street, Boston	MA 02109	US
09766725	01/24/01	130 Water Street, Boston	MA 02109	US
09772325	01/29/01	130 Water Street, Boston	MA 02109	US
09775167	02/01/01	130 Water Street, Boston	MA 02109	US
09777314	02/05/01	130 Water Street, Boston	MA 02109	US
09778365	02/07/01	130 Water Street, Boston	MA 02109	US
09780989	02/09/01	130 Water Street, Boston	MA 02109	US
09781642	02/12/01	130 Water Street, Boston	MA 02109	US
09781650	02/12/01	130 Water Street, Boston	MA 02109	US
09782527	02/13/01	130 Water Street, Boston	MA 02109	US
09786261	06/07/01	130 Water Street, Boston	MA 02109	US
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09788111	02/17/01	130 Water Street, Boston	MA 02109	US
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09790442	02/21/01	130 Water Street, Boston	MA 02109	US
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09795658	02/28/01	130 Water Street, Boston	MA 02109	US
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09798394	03/02/01	130 Water Street, Boston	MA 02109	US
09798928	03/05/01	130 Water Street, Boston	MA 02109	US
09800800	03/07/01	130 Water Street, Boston	MA 02109	US
09800312	03/09/01	130 Water Street, Boston	MA 02109	US
09804825	03/13/01	130 Water Street, Boston	MA 02109	US
09804972	03/13/01	130 Water Street, Boston	MA 02109	US
09806992	04/06/01	130 Water Street, Boston	MA 02109	US
09808320	03/14/01	130 Water Street, Boston	MA 02109	US
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09815594	03/23/01	130 Water Street, Boston	MA 02109	US
09819474	03/26/01	130 Water Street, Boston	MA 02109	US
09821605	03/29/01	130 Water Street, Boston	MA 02109	US
09822719	03/30/01	130 Water Street, Boston	MA 02109	US
09823202	03/29/01	130 Water Street, Boston	MA 02109	US
09824554	04/02/01	130 Water Street, Boston	MA 02109	US
09831738	05/11/01	130 Water Street, Boston	MA 02109	US
09833405	04/11/01	130 Water Street, Boston	MA 02109	US
09833988	04/12/01	130 Water Street, Boston	MA 02109	US
09839947	04/20/01	130 Water Street, Boston	MA 02109	US
09844150	04/27/01	130 Water Street, Boston	MA 02109	US
09850976	05/08/01	130 Water Street, Boston	MA 02109	US
09851836	05/09/01	130 Water Street, Boston	MA 02109	US
09857141	10/24/01	130 Water Street, Boston	MA 02109	US

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09657398	0653101	130 Water Street, Boston, MA 02109, US
09657815	0606801	130 Water Street, Boston, MA 02109, US
09659089	0571601	130 Water Street, Boston, MA 02109, US
09664818	052401	130 Water Street, Boston, MA 02109, US
09665540	0662701	130 Water Street, Boston, MA 02109, US
09671488	053101	130 Water Street, Boston, MA 02109, US
09672735	060101	130 Water Street, Boston, MA 02109, US
09675654	060601	130 Water Street, Boston, MA 02109, US
09675954	060701	130 Water Street, Boston, MA 02109, US
09679304	067201	130 Water Street, Boston, MA 02109, US
09681279	0671401	130 Water Street, Boston, MA 02109, US
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09685312	062201	130 Water Street, Boston, MA 02109, US
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09690687	0711801	130 Water Street, Boston, MA 02109, US
096907880	071201	130 Water Street, Boston, MA 02109, US
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09915087	072501	130 Water Street, Boston, MA 02109, US
09920393	080101	130 Water Street, Boston, MA 02109, US
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09925907	080901	130 Water Street, Boston, MA 02109, US
09937796	072802	130 Water Street, Boston, MA 02109, US
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09950889	0971001	130 Water Street, Boston, MA 02109, US
09952183	0971301	130 Water Street, Boston, MA 02109, US
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09954820	0971801	130 Water Street, Boston, MA 02109, US
09955927	0971901	130 Water Street, Boston, MA 02109, US
09956045	100201	130 Water Street, Boston, MA 02109, US
09961812	092401	130 Water Street, Boston, MA 02109, US
09964011	092501	130 Water Street, Boston, MA 02109, US
09968148	100101	130 Water Street, Boston, MA 02109, US
09971207	100401	130 Water Street, Boston, MA 02109, US
09974297	100401	130 Water Street, Boston, MA 02109, US
09974418	1071001	130 Water Street, Boston, MA 02109, US
09975594	1071101	130 Water Street, Boston, MA 02109, US
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09980797	112401	130 Water Street, Boston, MA 02109, US
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10000239	110201	130 Water Street, Boston, MA 02109, US
10000833	1093101	130 WATER STREET, BOSTON, MA 02109, US
10002949	1171501	130 Water Street, Boston, MA 02109, US
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10014311	1271101	130 Water Street, Boston, MA 02109, US
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10030568	070402	130 Water Street, Boston, MA 02109, US
10033117	102501	130 Water Street, Boston, MA 02109, US
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10037940	070402	130 Water Street, Boston, MA 02109, US
10041902	070802	130 Water Street, Boston, MA 02109, US
10045697	0711402	130 Water Street, Boston, MA 02109, US
10061645	0207102	130 Water Street, Boston, MA 02109, US

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D3070334	10070334		02/27/02	130 Water Street, Boston, MA 02109 US
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D10105652	10105652		03/25/02	130 Water Street, Boston, MA 02109 US
D10108070	10108070		03/27/02	130 Water Street, Boston, MA 02109 US
D10109304	10109304		03/28/02	130 Water Street, BOSTON, MA 02109 US
D10130925	10130925		05/23/02	130 Water Street, Boston, MA 02109 US
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D09870715	09870715		05/30/01	130 Water Street, BOSTON, MA 02109 US
B306558B1	05657634	10/23/01	05/30/01	130 Water Street, Boston, MA 02109 US
D314923	07372894	02/26/91	06/28/89	130 WATER STREET, BOSTON MA 02109 US
D314463	07340394	11/12/91	04/19/89	130 WATER STREET, BOSTON MA 02109 US
D331532	07650706	11/20/92	02/01/81	130 WATER STREET, BOSTON MA 02109 US
D333975	07314866	03/16/93	07/21/93	130 WATER STREET, BOSTON MA 02109 US
D346102	29002766	04/19/94	12/21/92	130 WATER STREET, BOSTON MA 02109 US
D349236	29001647	08/02/94	11/19/92	130 WATER STREET, BOSTON MA 02109 US
D351284	29011555	10/11/94	08/06/93	130 WATER STREET, BOSTON MA 02109 US
D362525	29025654	09/19/95	07/07/94	130 WATER STREET, BOSTON MA 02109 US
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D364431	29020459	11/21/95	03/23/94	130 WATER STREET, BOSTON MA 02109 US
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D366397	29027462	01/23/96	08/82/94	130 WATER STREET, BOSTON MA 02109 US
D366999	29028030	02/13/96	09/02/94	130 WATER STREET, BOSTON MA 02109 US
D367110	29030163	02/13/96	05/19/94	130 WATER STREET, BOSTON MA 02109 US
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D367605	29030327	03/05/96	10/26/94	130 WATER STREET, BOSTON MA 02109 US
D367704	29023762	03/05/96	05/19/94	130 WATER STREET, BOSTON MA 02109 US
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D370346	29004721	06/04/96	02/11/93	130 WATER STREET, BOSTON MA 02109 US
D371305	290011526	07/02/96	08/06/93	130 WATER STREET, BOSTON MA 02109 US
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D3731728	29030328	09/17/96	10/26/94	130 WATER STREET, BOSTON MA 02109 US
D377852	29030132	03/25/97	11/28/95	130 WATER STREET, BOSTON MA 02109 US
D383837	29050171	09/16/97	03/25/96	130 WATER STREET, BOSTON MA 02109 US
D384204	29047115	09/30/97	11/28/95	130 WATER STREET, BOSTON MA 02109 US
D387157	29052143	12/02/97	03/25/96	130 WATER STREET, BOSTON MA 02109 US
D389464	29054018	01/20/98	05/06/96	130 WATER STREET, BOSTON MA 02109 US
D394330	29046187	05/19/98	12/22/95	130 WATER STREET, BOSTON MA 02109 US
D399353	29048805	09/01/98	12/22/95	130 WATER STREET, BOSTON MA 02109 US
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D404732	29079103	01/26/99	11/07/97	130 WATER STREET, BOSTON MA 02109 US
D404793	29079061	01/26/99	11/07/97	130 WATER STREET, BOSTON MA 02109 US
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R5E31903	081148334	08/11/95	11/08/93	130 WATER STREET, BOSTON MA 02109 US

Dike Bronstein Roberts & Cushman	Yes	Yes
David G Conlin, Dike Bronstein Roberts & Cushman	Yes	Yes
Peter F. Corless	Yes	Yes
Dike Bronstein Roberts & Cushman	Yes	Yes
Dike Bronstein Roberts & Cushman	Yes	Yes
S. Matthew Cairns, c/o Dike, Bronstein, Roberts &	Yes	Yes
Dike, Bronstein, Roberts & Cushman, LLP	Yes	Yes
Dike Bronstein Roberts & Cushman	Yes	Yes
S. Matthew Cairns, c/o Dike, Bronstein, Roberts &	Yes	Yes
Dike, Bronstein, Roberts & Cushman, LLP	Yes	Yes
Dike, Bronstein, Roberts & Cushman, LLP	Yes	Yes
David G Conlin Esq., Dike Bronstein Roberts &	Yes	Yes
Dike Bronstein Roberts & Cushman LLP	Yes	Yes
Dike, Bronstein, Roberts & Cushman, LLP	Yes	Yes
Dike, Bronstein, Roberts Cushman, LLP	Yes	No
Peter F Corless, Dike Bronstein Roberts & Cushman	Yes	Yes
DONALD BROWN ESQ., DIKE, BRONSTEIN,	Yes	Yes
DONALD BROWN ESQ., DIKE, BRONSTEIN,	Yes	Yes
ROBERT L. GOLDBERG, ESQ., DIKE, BRONSTEIN,	Yes	Yes
LINDA M. BUCKLEY, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
LINDA M. BUCKLEY, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
NONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN AND CUSHMAN	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
DAVID S. RESNICK, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS AND	Yes	Yes
DONALD BROWN, DIKE BRONSTEIN ROBERTS &	Yes	Yes
LINDA M BUCKLEY, DIKE BRONSTEIN ROBERTS &	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ERNEST V. LINEK, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
ERNEST V. LINEK, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
LINDA M BUCKLEY, DIKE BRONSTEIN ROBERTS &	Yes	Yes
DONALD BROWN, DIKE, BRONSTEIN ROBERTS &	Yes	Yes
GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes
ERNEST V. LINEK, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
GEORGE W NEUNER, DIKE BRONSTEIN ROBERTS	Yes	Yes
DIKE BRONSTEIN ROBERTS & CUSHMAN	Yes	Yes
GEORGE W. NEUNER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
GEORGE W. NEUNER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
GEORGE W. NEUNER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
DAVID G CONLIN	Yes	Yes

61233.57	096232.5	0926.00	0726.98	130 WATER STREET, BOSTON, MA 02109-4280, US
6291264	096230.7	0918.01	0731.90	130 Water Street, Boston, MA 02109-4280, US
6376239	09632867	0423.02	0404.97	130 Water Street, Boston, MA 02109-4280, US
	09678130		1004.00	130 Water Street, Boston, MA 02109-4280, US
	09160439		0113.00	130 Water Street, Boston, MA 02109-4280, US
	09911948		0319.01	130 Water Street, Boston, MA 02109-4280, US
	09920102		0328.01	130 Water Street, Boston, MA 02109-4280, US
	09823176		0329.01	130 Water Street, Boston, MA 02109-4280, US
	09833945		0419.01	130 Water Street, Boston, MA 02109-4280, US
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	098424178		0426.01	130 Water Street, Boston, MA 02109-4280, US
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	09846558		0426.01	130 Water Street, Boston, MA 02109-4280, US
	09848137		0503.01	130 Water Street, Boston, MA 02109-4280, US
	09870603		0530.01	130 Water Street, Boston, MA 02109-4280, US
	09865256		0925.01	130 Water Street, Boston, MA 02109-4280, US
	09966349		1002.01	130 Water Street, Boston, MA 02109-4280, US
	10000629		1031.01	130 Water Street, Boston, MA 02109-4280, US
	10068822		0205.02	130 Water Street, Boston, MA 02109-4280, US
636544482	09812106	0402.02	0319.01	130 Water Street, Boston, MA 02109-4280, US
4513831	06492942	0430.85	0509.83	130 WATER STREET, BOSTON, MA 02109-4280, US
4522462	09649660	0611.85	0527.83	130 WATER STREET, BOSTON, MA 02109-4280, US
4626345	09646789	1202.86	0904.84	130 WATER STREET, BOSTON, MA 02109-4280, US
4629413	09652824	1216.86	1008.85	130 WATER STREET, BOSTON, MA 02109-4280, US
4632795	09665269	0120.87	1002.84	130 WATER STREET, BOSTON, MA 02109-4280, US
4755272	09688016	0823.88	1231.84	130 WATER STREET, BOSTON, MA 02109-4280, US
4781427	09717934	1101.68	0919.85	130 WATER STREET, BOSTON, MA 02109-4280, US
4802628	07071193	0207.89	0709.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4805234	06813682	0214.89	0930.86	130 WATER STREET, BOSTON, MA 02109-4280, US
4835393	07051945	0530.89	0604.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4846293	07256439	0711.89	1012.88	130 WATER STREET, BOSTON, MA 02109-4280, US
4846460	07049616	0711.89	0513.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4884804	07248782	1205.89	0508.89	130 WATER STREET, BOSTON, MA 02109-4280, US
4889630	07052848	1226.89	0520.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4896600	07025846	0213.90	0316.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4933600	07090775	0508.90	0928.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4948566	07100490	0814.90	0924.87	130 WATER STREET, BOSTON, MA 02109-4280, US
4968607	07206484	1030.90	0613.88	130 WATER STREET, BOSTON, MA 02109-4280, US
4974377	07170317	1204.90	0318.88	130 WATER STREET, BOSTON, MA 02109-4280, US
5024099	07138617	0618.91	1120.89	130 WATER STREET, BOSTON, MA 02109-4280, US
5037616	070968714	0806.91	0918.87	130 WATER STREET, BOSTON, MA 02109-4280, US
5078560	07404314	0107.92	1122.89	130 WATER STREET, BOSTON, MA 02109-4280, US
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5117559	07463247	0526.92	0110.90	130 WATER STREET, BOSTON, MA 02109-4280, US
5117656	07470385	0526.92	0126.90	130 WATER STREET, BOSTON, MA 02109-4280, US
5132283	07639656	0728.92	0110.91	130 WATER STREET, BOSTON, MA 02109-4280, US
5145882	07167839	0908.92	1121.90	130 WATER STREET, BOSTON, MA 02109-4280, US
5160611	07075523	1103.92	0906.91	130 WATER STREET, BOSTON, MA 02109-4280, US
5173321	075787878	1222.92	0905.90	130 WATER STREET, BOSTON, MA 02109-4280, US
5190976	07844498	0302.93	0302.92	130 WATER STREET, BOSTON, MA 02109-4280, US
5221439	07116083	0622.93	0617.91	130 WATER STREET, BOSTON, MA 02109-4280, US
5222666	07868305	0629.93	0518.92	130 WATER STREET, BOSTON, MA 02109-4280, US
5230034	07803400	0727.93	1218.91	130 WATER STREET, BOSTON, MA 02109-4280, US
5238357	07075144	0824.93		

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5350714	08148354	09/27/94	11/08/93	130 WATER STREET, BOSTON, MA 021094280, US	ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes
537436	08104801	12/20/94	08/09/93	130 WATER STREET, BOSTON, MA 021094280, US	ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes
5395652	08177593	03/07/95	01/05/94	130 WATER STREET, BOSTON, MA 021094280, US	ROBERT L. GOLDBERG, DIKE, BRONSTEIN,	Yes	Yes
5446572	07836986	08/26/95	02/14/92	130 WATER STREET, BOSTON, MA 021094280, US	C/O DIKE, BRONSTEIN, ROBERTS & CUSHMAN,	Yes	Yes
5455513	08163356	10/03/95	12/07/93	130 WATER STREET, BOSTON, MA 021094280, US	HENRY D. PAHL, JR., DIKE, BRONSTEIN, ROBERTS	Yes	Yes
5466206	08236484	11/14/95	11/14/95	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5488914	08111391	02/06/96	08/25/93	130 WATER STREET, BOSTON, MA 021094280, US	HENRY D. PAHL, JR., DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5489273	08321206	02/06/96	10/07/94	130 WATER STREET, BOSTON, MA 021094280, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5532132	08127977	07/02/96	09/28/96	130 WATER STREET, BOSTON, MA 021094280, US	DAVID S. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
553406	08175303	07/09/96	12/29/93	130 WATER STREET, BOSTON, MA 021094280, US	GEORGE W. NEUNER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
5553043	08338073	09/03/96	12/15/94	130 WATER STREET, BOSTON, MA 021094280, US	DIKE, BRONSTEIN, ROBERTS AND CUSHMAN, BRIAN	Yes	Yes
5556639	08090111	09/17/96	07/13/93	130 WATER STREET, BOSTON, MA 021094280, US	GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes	Yes
5559156	08335990	09/24/96	11/08/94	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN & CUSHMAN	Yes	Yes
5561164	08104034	10/01/96	08/05/93	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5564516	08393211	10/15/96	02/23/95	130 WATER STREET, BOSTON, MA 021094280, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5589942	07505722	12/31/96	04/05/90	130 WATER STREET, BOSTON, MA 021094280, US	PETER J. MANUS, ESQ., DIKE, BRONSTEIN,	Yes	Yes
5601141	07959775	02/11/97	10/13/92	130 WATER STREET, BOSTON, MA 021094280, US	PETER J. MANUS, ESQ.,	Yes	Yes
5608751	08209963	03/04/97	03/14/94	130 WATER STREET, BOSTON, MA 021094280, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5628726	08389928	05/13/97	02/16/95	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5665570	08384545	09/09/97	02/07/95	130 WATER STREET, BOSTON, MA 021094280, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS AND	Yes	Yes
5678926	08353102	10/21/97	12/09/94	130 WATER STREET, BOSTON, MA 021094280, US	ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes	Yes
5763284	08428733	06/09/98	04/25/95	130 WATER STREET, BOSTON, MA 021094280, US	PETER F. CORLESS, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5782962	08706076	07/21/98	08/30/96	130 WATER STREET, BOSTON, MA 021094280, US	GEORGE W. NEUNER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
5840976	08724036	11/24/98	09/23/96	130 WATER STREET, BOSTON, MA 021094280, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes	Yes
5844141	08758488	12/01/98	11/29/96	130 WATER STREET, BOSTON, MA 021094280, US	MILTON OLIVER, DIKE, BRONSTEIN, ROBERTS AND	Yes	Yes
5858847	08455708	01/05/99	05/31/95	130 WATER STREET, BOSTON, MA 021094280, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes	Yes
5985935	08302726	11/16/99	11/01/94	130 WATER STREET, BOSTON, MA 021094280, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
6018812	07600204	06/12/01	08/17/99	130 WATER STREET, BOSTON, MA 021094280, US	PETER J. MANUS, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
6248469	09261349	06/19/01	03/03/99	130 WATER STREET, BOSTON, MA 021094280, US	CHRISTINE C. O'DAY, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
6309859	08436518	10/30/01	01/09/99	130 WATER STREET, BOSTON, MA 021094280, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN LLP	Yes	Yes
	08116291		09/03/99	130 WATER STREET, BOSTON, MA 021094280, US	GREGORY D. WILLIAMS, DIKE, BRONSTEIN	Yes	Yes
	60029003		10/23/96	130 WATER STREET, BOSTON, MA 021094280, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes	Yes
D554947	28004726	03/21/95	02/11/93	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
D555991	28024396	06/29/95	06/14/94	130 WATER STREET, BOSTON, MA 021094280, US	KEVIN J. FOURNIER, DIKE, BRONSTEIN, ROBERTS	Yes	Yes
D567760	29010703	03/12/96	07/15/93	130 WATER STREET, BOSTON, MA 021094280, US	DONALD BROWN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
D572413	29003655	08/06/96	01/12/93	130 WATER STREET, BOSTON, MA 021094280, US	ERNEST V. LINEK, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
D115330	29096664	10/12/99	11/18/98	130 WATER STREET, BOSTON, MA 021094280, US	PETER J. MANUS, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5228493	07604778	07/20/93	10/26/90	130 WATER STREET, BOSTON, MA 02110, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
	09626234		07/26/01	130 Water Street, Boston, MA 02209, US	Dike Bronstein, Roberts & Cushman,	Yes	Yes
	09929405		08/14/01	130 Water Street, Boston, MA 02209, US	Dike Bronstein, Roberts & Cushman	Yes	Yes
	10009683		12/10/01	130 Water Street, Boston, MA 02209, US	David G. Conlin, Dike Bronstein Roberts & Cushman	Yes	Yes
	60238776		10/06/00	130 Water Street, Edwards & Angell Intellectual Property	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes	Yes
5166172	07662120	11/24/92	02/28/91	130 WATER STREET, BOSTON, MA 02109, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
5172536	07422932	12/22/92	10/17/96	130 WATER STREET, BOSTON, MA 02109, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
591149	08882646	06/22/99	06/25/97	130 WATER STREET, BOSTON, MA 02109, US	DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS &	Yes	Yes
6136494	08750737	10/24/00	09/13/99	130 WATER STREET, BOSTON, MA 02109, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes	Yes
6280120	09321591	08/28/01	06/08/99	130 WATER STREET, BOSTON, MA 02109, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN LLP	Yes	Yes
5470961	08033777	11/28/95	03/19/93	BOSTON, MA 02109, US	DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes	Yes
5466711	07886028	11/14/95	05/20/92	BOSTON, LMA 02109	DONALD BROWN, 130 WATER ST.	Yes	Yes
4122669	06770715	02/02/86	08/29/85	BOSTON, MA 02109, US	PAHL, LORUSSO & LOUD, 60 STATE ST.	Yes	Yes
4714247	06908177	05/03/86	09/17/86	BOSTON, MA 02109, US	HENRY D. PAHL, JR., ESQ., 60 STATE ST.	Yes	Yes
4756830	07050780	07/12/88	05/18/87	BOSTON, MA 02109, US	HENRY D. PAHL, JR., ATTORNEY AT LAW, 60 STATE	Yes	Yes
4810333	07132175	03/07/89	12/14/87	BOSTON, MA 02109, US	ROBERT L. GOLDBERG, 130 WATER STREET	Yes	Yes
4841101	07135602	06/20/89	12/21/87	BOSTON, MA 02109, US	HENRY D. PAHL, JR., ATTORNEY AT LAW, 60 STATE	Yes	Yes
4885579	07134775	12/05/89	12/17/87	BOSTON, MA 02109, US	DIKE, BRONSTEIN, ROBERTS, CUSHMAN, & PFUND	Yes	Yes
4887812	07113879	12/19/89	10/27/87	BOSTON, MA 02109, US	DONALD BROWN, 130 WATER STREET	Yes	Yes

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ROBERT L. GOLDBERG, 130 WATER STREET
ROBERT F. O'CONNELL, 130 WATER STREET
ROBERT L. GOLDBERG, 130 WATER STREET
ROBERT L. GOLDBERG, 130 WATER STREET
DIKE, BRONSTEIN, ROBERTS AND CUSHMAN, 130
DAVID G. CONLIN, 130 WATER STREET
DAVID G. CONLIN, 130 WATER STREET
DONALD BROWN, 130 WATER STREET
DAVID G. CONLIN, 130 WATER STREET
ROBERT L. GOLDBERG, 130 WATER STREET
DAVID G. CONLIN, 130 WATER STREET
ROBERT M. ASHER, DIKE, BRONSTEIN, ROBERTS
ROBERT L. GOLDBERG, 130 WATER STREET
DONALD BROWN, 130 WATER STREET
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DAVID G. CONLIN, 130 WATER STREET
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DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
DAVID G. CONLIN, 130 WATER ST.
DONALD BROWN, 130 WATER STREET
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ROBERT L. GOLDBERG, 130 WATER STREET
DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
DONALD BROWN, 130 WATER STREET
DAVID G. CONLIN, 130 WATER STREET
ROBERT L. GOLDBERG, 130 WATER STREET
DAVID G. CONLIN, 130 WATER STREET
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ROBERT L. GOLDBERG, 130 WATER STREET
DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
DAVID G. CONLIN, 130 WATER ST.
DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130

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5514693	08012588	05254194	02020393	BOSTON	MA	02-109	US
5517430	07987621	05351194	1209932	BOSTON	MA	02-109	US
5521431	07799370	06814194	1127191	BOSTON	MA	02-109	US
55231536	079659104	06614194	1030392	BOSTON	MA	02-109	US
5531621	07946934	06719194	0987192	BOSTON	MA	02-109	US
5536161	07983417	08060994	1130092	BOSTON	MA	02-109	US
5538282	080989739	09300194	0730393	BOSTON	MA	02-109	US
55386311	08037979	10018194	0325393	BOSTON	MA	02-109	US
55386546	08041551	10311995	0222393	BOSTON	MA	02-109	US
55386690	08195156	03070795	0925494	BOSTON	MA	02-109	US
553961121	08139552	03020795	1082493	BOSTON	MA	02-109	US
55400048	08110859	03271195	0820393	BOSTON	MA	02-109	US
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55404039	08072559	03040195	0603393	BOSTON	MA	02-109	US
55410029	08065610	04250195	0527193	BOSTON	MA	02-109	US
55416754	079595367	05251995	1222392	BOSTON	MA	02-109	US
55418547	08199465	0525393	1022392	BOSTON	MA	02-109	US
55422285	08067461	05060995	0526633	BOSTON	MA	02-109	US
55426310	08142184	0613395	1026593	BOSTON	MA	02-109	US
55426919	08058173	06271195	0507193	BOSTON	MA	02-109	US
55430362	08163027	07040195	1206633	BOSTON	MA	02-109	US
55430504	079232322	07040195	0713192	BOSTON	MA	02-109	US
55434859	08288423	07718195	08781094	BOSTON	MA	02-109	US
55437814	08233808	08010195	04266194	BOSTON	MA	02-109	US
55439561	08329660	0801195	1026594	BOSTON	MA	02-109	US
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55434367	08195949	0822295	0218194	BOSTON	MA	02-109	US
55467119	08013038	0826995	0207093	BOSTON	MA	02-109	US
55471124	08122480	0905095	0927393	BOSTON	MA	02-109	US
55473450	08054454	12050195	0427293	BOSTON	MA	02-109	US
55486642	07924054	0123196	0315191	BOSTON	MA	02-109	US
55486959	08741850	1013093		BOSTON	MA	02-109	US
55486922	08293123	0271396	0819194	BOSTON	MA	02-109	US
55494146	08227580	0222796	0414194	BOSTON	MA	02-109	US
55495294	08199242	0227196	0228294	BOSTON	MA	02-109	US
55512660	08210820	0430096	1117194	BOSTON	MA	02-109	US
55527125	08211597	0678196	040594	BOSTON	MA	02-109	US
55527963	08345578	0678196	1016194	BOSTON	MA	02-109	US
55541104	08244398	0709096	0525194	BOSTON	MA	02-109	US
55545165	08244397	0871396	0520494	BOSTON	MA	02-109	US
55545233	08244411	0871396	0524194	BOSTON	MA	02-109	US

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55667738	063346673	10022366	0731355	BOSTON	MA	02109	US
5572192	06515483	1100596	0845955	BOSTON	MA	02109	US
5574185	083346605	12112966	1116694	BOSTON	MA	02109	US
5582876	08357781	12110965	1216764	BOSTON	MA	02109	US
5595983	068259745	12110965	0652695	BOSTON	MA	02109	US
5596402	068452367	1211796	0652695	BOSTON	MA	02109	US
55959836	084545797	0202497	0504095	BOSTON	MA	02109	US
5605180	082399594	1022597	0907194	BOSTON	MA	02109	US
5623050	079324345	0422297	084892	BOSTON	MA	02109	US
56254974	08578972	0424987	1212755	BOSTON	MA	02109	US
5635333	083855198	0603397	1212894	BOSTON	MA	02109	US
5641654	068031072	0652497	0682253	BOSTON	MA	02109	US
5645160	08466042	0708097	0606955	BOSTON	MA	02109	US
5647931	08507516	0715197	0882295	BOSTON	MA	02109	US
5655401	083032222	0906997	0424296	BOSTON	MA	02109	US
5668671	08302818	091697	0300594	BOSTON	MA	02109	US
5672176	08611991	0932097	0303056	BOSTON	MA	02109	US
5676640	086225657	1101497	0326165	BOSTON	MA	02109	US
5677194	084236591	1101497	0326165	BOSTON	MA	02109	US
5681319	08680681	102897	0226695	BOSTON	MA	02109	US
5702451	08581149	1235097	1212955	BOSTON	MA	02109	US
5712391	08671001	0127298	0628965	BOSTON	MA	02109	US
5716580	084565097	0210198	0627565	BOSTON	MA	02109	US
5725852	08528997	0310798	0912395	BOSTON	MA	02109	US
5728174	085326257	0317198	1000395	BOSTON	MA	02109	US
5730925	086341171	0324298	047496	BOSTON	MA	02109	US
5753374	086622008	0651996	0326165	BOSTON	MA	02109	US
5753319	08400978	0519198	0300895	BOSTON	MA	02109	US
5768894	08571906	0623298	1219585	BOSTON	MA	02109	US
5814378	08678294	0929398	0711965	BOSTON	MA	02109	US
5840683	08626469	1124298	0401296	BOSTON	MA	02109	US
5854407	08475557	1232996	0607565	BOSTON	MA	02109	US
5876767	08809902	030299	0213995	BOSTON	MA	02109	US
5925001	08225820	0720299	0411994	BOSTON	MA	02109	US
5942231	08684920	0824299	064895	BOSTON	MA	02109	US
5952306	07191543	0891499	072492	BOSTON	MA	02109	US
595491	09495352	0927199	0627955	BOSTON	MA	02109	US
5962570	08576393	1100599	1213365	BOSTON	MA	02109	US
5981502	08912431	1106999	1214955	BOSTON	MA	02109	US
5986974	086020285	1102399	0332296	BOSTON	MA	02109	US
6045790	07939556	0404000	0900192	BOSTON	MA	02109	US
6060556	08657888	0627200	0303998	BOSTON	MA	02109	US
6117576	08552584	0109091	1100395	BOSTON	MA	02109	US
6216505	07323040	0641701	0911091	BOSTON	MA	02109	US
	07371383		0310089	BOSTON	MA	02109	US
	07519280		0626695	BOSTON	MA	02109	US
	07549460		0406590	BOSTON	MA	02109	US
	07580705		0706090	BOSTON	MA	02109	US
	07581293		0591290	BOSTON	MA	02109	US
	07754287		0803091	BOSTON	MA	02109	

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DKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
PETER J. MAUNS, 130 WATER STREET
DONALD BROWN, ESQUIRE, 130 WATER STREET
DONALD BROWN, 130 WATER ST.
DIKE, BRONSTEIN, ROBERTS, CUSHMAN, 130
DONALD BROWN, 130 WATER ST.
DAVID G. CONLIN, 130 WATER STREET
DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
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DIKE, BRONSTEIN, ROBERTS & CUSHMAN, 130
ROBERT T. GAMMONS ESQ., DIKE, BRONSTEIN,
DAVID G. CONLIN, DIKE, BRONSTEIN,
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,
ATTN: ROBERT M. ASHER, DIKE, BRONSTEIN,
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS,
ROBERT T. GAMMONS ESQ., DIKE, BRONSTEIN,
DAVID G. CONLIN, ESQUIRE, DIKE, BRONSTEIN,
ATTN: ROBERT F. O'CONNELL, DIKE, BRONSTEIN
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,
S. MATTHEW CAIRNS, C/O EDWARDS & ANGELL,
Peter F. Corless, Edwards & Angell LLP
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell LLP
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
Peter F. Corless, Edwards & Angell
William J. Daley, Jr., EDWARDS & ANGELL, LLP
Lisa Swissarz Hazzard, EDWARDS & ANGELL, LLP
Robert L. Buchanan, EDWARDS & ANGELL, LLP
PETER F. CORLESS, EDWARDS & ANGELL, LLP
S. Matthew Cairns, EDWARDS & ANGELL, LLP

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09672071	09/28/00	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	Peter F. Corless, EDWARDS & ANGELL, LLP	Yes
09733815	03/30/01	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	John J. Piskorski, c/o EDWARDS & ANGELL, LLP	Yes
09734392	12/11/00	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	Peter F. Corless, EDWARDS & ANGELL, LLP	Yes
09781462	02/12/01	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	S. Matthew Cairns, c/o EDWARDS & ANGELL, LLP	Yes
09794663	02/26/01	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	S. Matthew Cairns, c/o EDWARDS & ANGELL, LLP	Yes
09818348	03/27/01	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	Peter F. Corless, EDWARDS & ANGELL, LLP	Yes
09958990	11/28/01	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	John J. Piskorski, c/o EDWARDS & ANGELL, LLP	Yes
09632736	08/04/00	Dike, Bronstein, Roberts & Cushman, IP Group, 130 Water	S. Matthew Cairns, c/o EDWARDS & ANGELL, LLP	Yes
10015867	12/21/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes
10166012	06/22/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
10125038	04/18/02	Edward & Angel, LLP, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09653509	03/19/02	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09633774	08/11/00	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09704908	11/02/00	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09706359	11/03/00	EDWARDS & ANGELL LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman	Yes
09718174	11/17/00	EDWARDS & ANGELL LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09756649	01/03/01	EDWARDS & ANGELL LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09619278	07/19/00	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman	Yes
6417221	09/07/02	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09671534	09/27/00	Edward & Angel LLP, 130 Water Street, Boston, MA 02109, US	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes
6361580	09/22/03	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09622006	11/20/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09655003	09/11/00	EDWARDS & ANGELL, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, LLP, Intellectual	Yes
09701264	08/08/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike Bronstein Roberts & Cushman, Intellectual	Yes
09719278	02/08/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09906287	03/28/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09857119	10/01/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman IP	Yes
09914236	08/22/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09980765	11/01/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes
10019265	11/13/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	William J. Daley Jr, Dike Bronstein Roberts & Cushman	Yes
10049668	02/13/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes
10049969	02/13/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	George W. Neuner, Dike Bronstein Roberts & Cushman	Yes
10168394	06/19/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
10168395	06/19/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09600962	10/23/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Peter F. Corless, Dike Bronstein Roberts & Cushman	Yes
09601895	09/22/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	David G. Conlin, Dike Bronstein Roberts & Cushman	Yes
10029363	12/20/01	EDWARDS & ANGELL, 130 WATER STREET, BOSTON,	Lisa Swiszc, Hazzard, Dike Bronstein Roberts & Cushman	Yes
6316918	09/35/01	EDWARDS & ANGELL, LLP, 130 WATER STREET, BOSTON,	David G. Conlin, Dike Bronstein, Roberts & Cushman	Yes
6320378	11/20/01	EDWARDS & ANGELL, LLP, 130 WATER STREET, BOSTON,	GEORGE W. NEUNER, DIKE BRONSTEIN ROBERTS	Yes
09926646	11/20/01	EDWARDS & ANGELL, LLP, 130 WATER STREET, BOSTON,	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
6346813	02/19/02	EDWARDS & ANGELL, LLP, 130 WATER STREET, BOSTON,	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
6355910	03/12/02	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09733835	12/08/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09783525	02/14/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, BRONSTEIN, ROBERTS & CUSHMAN,	Yes
09657825	09/08/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09711161	11/12/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09715715	11/17/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09717937	11/21/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09721182	11/22/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09747910	12/22/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
0974913	12/22/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09748502	12/26/00	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09750984	01/20/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09759914	01/12/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09764676	01/18/01	Edward & Angel, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09768931	01/24/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, LLP, Intellectual	Yes
09767311	02/02/01	Edward & Angel, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09718682	02/21/01	Edward & Angel, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
09789687	02/21/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA 02109, US	Dike, BRONSTEIN, ROBERTS & CUSHMAN,	Yes
09790486	02/22/01	Edward & Angel, LLP, 130 Water Street, Boston, MA 02109, US	Dike, Bronstein, Roberts & Cushman, Intellectual	Yes

09728822	11/29/00	Edwards & Angel, LLP, 130 Water Street, Boston, MA 02109,
09758906	01/11/01	Edwards & Angel, LLP, 130 Water Street, Boston, MA 02109,
09809907	03/16/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
63132099B2	11/06/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
09785796	02/16/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
63232066B2	11/27/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
09798397	03/20/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
09752102	12/29/00	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
09834313	04/13/01	EDWARDS & ANGELL, LLP, 130 Water Street, Boston, MA
09803356B	03/20/01	Intellectual Property Patent Practice, 130 Water Street, Boston,
09812817	03/22/01	Intellectual Property Practice Group, 130 Water Street, Boston,
09815557	03/22/01	Intellectual Property Practice Group, 130 Water Street, Boston,
09830646	04/27/01	Intellectual Property Practice Group, 130 Water Street, Boston,
10049305	02/06/02	Intellectual Property Practice Group, 130 Water Street, Boston,
09679482	10/04/00	Intellectual Property Practice Group, 130 Water Street, Boston,
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09822768	03/30/01	Intellectual Property Practice Group, 130 Water Street, Boston,
10069560	02/22/02	Intellectual Property Practice Group, 130 Water Street, Boston,
09830706	08/07/01	Intellectual Property Practice Group, 130 Water Street, Boston,
09769911	01/25/01	Intellectual Property Practice Group, 130 Water Street, Boston,
09860107	07/18/02	Intl. Prop. Practice Group, Edwards & Angel, LLP, 130 Water
10070511	03/30/02	IP Group of Edwards & Angel, 130 Water Street, Boston, MA
09918399	07/30/01	IP Group of Edwards & Angel, 130 Water Street, Boston, MA
09961808	09/24/01	IP Group of EDWARDS & ANGELL, LLP, 130 Water Street,
10190292	07/03/02	IP Group of EDWARDS & ANGELL, LLP, 130 Water Street,
47511106	06/14/88	P. O. Box 9169, Marlborough, MA 01752, US
44536060	06/14/88	PFUND, 130 WATER ST., BOSTON, MA 02109, US
066450561	11/20/04	PFUND, 130 WATER ST., BOSTON, MA 02109, US
06604923	04/15/86	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4552188	04/27/84	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4764191	10/05/87	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4835102	03/31/87	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4931046	02/22/89	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4940730	10/03/88	PFUND, 130 WATER ST., BOSTON, MA 02109, US
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58821177	01/24/89	PFUND, 130 WATER ST., BOSTON, MA 02109, US
4735497	07/01/83	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4837379	06/02/88	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4853126	06/05/88	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4871826	06/05/88	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4877050	06/22/87	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4907232	10/28/88	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4907232	04/28/88	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
4956740	08/04/87	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
07081645	02/21/89	PFUND, 130 WATER STREET, BOSTON, MA 02109, US
07168181	08/25/86	PRUND, 130 WATER ST., BOSTON, MA 02109, US
06889986	06/20/86	ROBERT L. GOLDBERG, 130 WATER STREET, BOSTON, MA
4902610	06/20/80	ROBERT L. GOLDBERG, 130 WATER STREET, BOSTON, MA
07561362	05/11/93	ROBERTS & CUSHMAN, 130 WATER STREET, BOSTON, MA

Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, LLP, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, Intellectual	No
Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
Dike, Bronstein, Roberts & Cushman, Intellectual	Yes
EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts &	Yes
EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts &	Yes
Edwards & Angell, LLP, Dike, Bronstein, Roberts &	Yes
Peter F Corless, Dike Bronstein Roberts & Cushman	Yes
George W Neuner, Dike Bronstein Roberts & Cushman,	Yes
Edwards & Angell LLP, Dike, Bronstein, Roberts &	Yes
DIKE, BRONSTEIN, ROBERTS & CUSHMAN,	Yes
EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts &	Yes
George W Neuner Edward & Angell, Dike Bronstein	Yes
Peter F Corless, Dike Bronstein Roberts & Cushman	Yes
David G. Conlin, Dike, Bronstein, Roberts & Cushman	Yes
Peter F Corless, Dike Bronstein Roberts & Cushman	Yes
Peter F Corless, Dike Bronstein Roberts & Cushman	Yes
Peter F. Corless, c/o Dike, Bronstein, Roberts &	Yes
S. Matthew Cairns, c/o Dike, Bronstein, Roberts &	Yes
S. Matthew Cairns, c/o Bronstein, Robert & Cushman,	Yes
ROBERT L. GOLDBERG, ESQ., DIKE, BRONSTEIN,	Yes
ROBERT I. GOLDBERG, ESQ., DIKE, BRONSTEIN,	Yes
GEORGE W. NEUNER, ESQ., DIKE, BRONSTEIN,	Yes
ROBERT T. GAMMONS, ESQ., DIKE, BRONSTEIN,	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,	Yes
ROBERT M. ASHER, DIKE, BRONSTEIN, ROBERTS,	Yes
DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS,	Yes
ROBERT T. GAMMONS, DIKE, BRONSTEIN,	Yes
GEORGE W. NEUNER, DIKE, BRONSTEIN,	Yes
ROBERT T. GAMMONS, DIKE, BRONSTEIN,	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes
DONALD BROWN, DIKE, BRONSTEIN, ROBERTS,	Yes
ATTN: DAVID G. CONLIN, ESQ., DIKE, BRONSTEIN,	Yes
DIKE, DIKE, BRONSTEIN, ROBERTS & CUSHMAN	Yes
ROBERT F. O'CONNELL, DIKE, BRONSTEIN,	Yes

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Practitioner's Docket No. 55,750 (45672)
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: T. Adachi, et al.
Application No.: 09/820021 Group No.: Unassigned
Filed: March 28, 2001 Examiner: Unassigned
For: LIQUID CRYSTAL DISPLAY DEVICE

Assistant Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL OF CERTIFIED COPY

Attached please find the certified copy of the foreign application from which priority is claimed for this case:

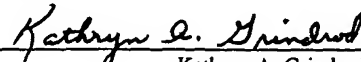
Country:	Japan	Country:	Japan
Application No:	2000-091832	Application No.	2000-096765
Filing Date:	3/29/2000	Filing Date	3/31/2000
Country:	Japan	Country:	Japan
Application No.	2001-032773	Application No.	2001-038246
Filing Date	2/8/2001	Filing Date	2/15/2001

CERTIFICATE OF MAILING (37 C.F.R. 1.8a)

I hereby certify that this correspondence is, on the date shown below, being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Date: May 7, 2001

Signature


Kathryn A. Grindrod

T. Adachi, et al.
USSN: 09/820021
Page 2

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Customer No.: 21874

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Tel. No.: (617) 523-3400
164172

David A. Tucker
SIGNATURE OF PRACTITIONER
David A. Tucker
Reg. No. 27,840

日本国特許庁
PATENT OFFICE
JAPANESE GOVERNMENT

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別紙添付の書類に記載されている事項は下記の出願書類に記載されて
いる事項と同一であることを証明する。
This is to certify that the annexed is a true copy of the following application as filed
with this Office.

出願年月日
Date of Application:

2000年 3月29日

出願番号
Application Number:

特願2000-091832

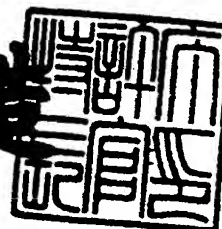
出願人
Applicant(s):

シャープ株式会社

2001年 1月12日

特許庁長官
Commissioner,
Patent Office

及川耕造



出証番号 出証特2000-3111577

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This is to certify that the annexed is a true copy of the following application as filed
with this Office.

出願年月日
Date of Application:

2000年 3月31日

出願番号
Application Number:

特願2000-096765

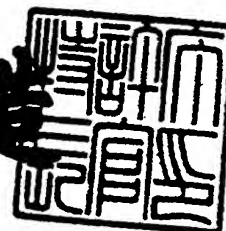
出願人
Applicant(s):

シャープ株式会社

2001年 1月12日

特許庁長官
Commissioner,
Patent Office

及川耕造



出証番号 出証特2000-3111578

日本国特許庁
PATENT OFFICE
JAPANESE GOVERNMENT

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る事項と同一であることを証明する。

This is to certify that the annexed is a true copy of the following application as filed
with this Office.

出願年月日
Date of Application:

2001年 2月 8日

願番号
Application Number:

特願2001-032773

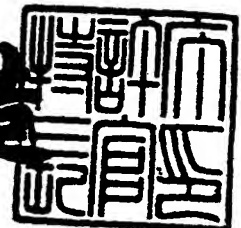
願人
Applicant(s):

シャープ株式会社

2001年 3月 9日

特許庁長官
Commissioner,
Patent Office

及川耕造



出証番号 出証特2001-3016361

日本国特許庁
PATENT OFFICE
JAPANESE GOVERNMENT

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This is to certify that the annexed is a true copy of the following application as filed with this Office.

出願年月日
Date of Application:

2001年 2月15日

出願番号
Application Number:

特願2001-038246

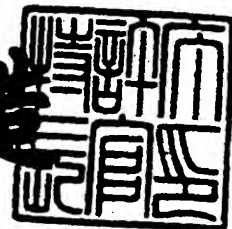
出願人
Applicant(s):

シャープ株式会社

2001年 3月16日

特許庁長官
Commissioner,
Patent Office

及川耕造



出証番号 出証特2001-3018443

COPY

Attorney Docket No. 55,750 (45672)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: T. Adachi, et al.

U.S.S.N.: Unassigned

Art Unit: Unassigned

FILED: Herewith

Examiner: Unassigned

FOR: LIQUID CRYSTAL DISPLAY DEVICE

.....
CERTIFICATE OF EXPRESS MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 (Express Mail Label No. EL730721694US), and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231. on March 28, 2001

By: 

Donna M. Pomase
.....

**INFORMATION DISCLOSURE STATEMENT
(SUBMISSION AFTER FILING OF AN APPLICATION
BUT BEFORE FINAL REJECTION OR NOTICE OF ALLOWANCE)**

Assistant Commissioner for Patents
Washington, D.C. 20231

Date: March 28, 2001

Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, Applicant(s) hereby submit(s) an Information Disclosure Statement for consideration by the Examiner.

I. **LIST OF PATENTS, PUBLICATIONS OR OTHER INFORMATION**

The patents, publications or other information submitted for consideration by the Office are listed on PTO-1449, attached hereto.

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II. COPIES

- a. X Submitted herewith is a legible copy of (i) each U.S and foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed.
- b. Each of the patents, publications or other information listed on the attached PTO-1449 was previously cited by or submitted to the USPTO in connection with U.S.S.N.: 08/000,000, to which the subject application claims the benefit of the earlier filing date. As such, a copy of each is not included herewith pursuant to 37 C.F.R. § 1.98(d).

III. CONCISE EXPLANATION OF THE RELEVANCE

(check at least one box)

- a. X Except as may be indicated below in (b), all of the patents, publications or other information are in the English language or were cited in an English language Search Report, a copy of which is attached hereto (concise explanation not required).
- b. X A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:

 English translation for reference(s) .

X English abstract for reference(s) BA.

 English translation of search report/ official communication.

 Copy of PCT/EPO Search Report.

Reference BA also referred to in background of subject application.

- c. The following additional information is provided for the Examiner's consideration:

 Copy of EPO Search Report.

 Copy of PCT Search Report.

 Copy of Official Communication from the Patent Office.

 English translation of search report/ official communication.

 Copy of .

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FEES

IV. THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(b)
(check one box)

- a. X within three months of the filing date of a national application (37 C.F.R. § 1.97(b) (1)). No fee or certification is required.
- b. _____ within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b) (2)). No fee or certification is required.
- c. _____ before the mailing date of a first Action on the merits (37 C.F.R. § 1.97(b) (3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below, or, if no certification has been made, charge our deposit account a fee in the amount of \$230.00 as required by 37 C.F.R. § 1.17(p).

V. THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(c):
(check one box)

before the mailing date of a Final Office Action under 37 C.F.R. § 1.113 (See 37 C.F.R. § 1.97(c) (1)) or before the mailing date of a Notice of Allowance under 37 C.F.R. § 1.311 (See 37 C.F.R. § 1.97(e) (2)).

- a. _____ No certification; therefore, a fee in the amount of \$230.00 is required by 37 C.F.R. § 1.17(p).
- or
- b. _____ See the certification below. No fee is required.

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VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e) (check only one box)

The undersigned hereby certifies that

- a. ☐ each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- b. ☐ no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.
- c. ☐ Some of the items of information were cited in a communication from a foreign Patent Office. As to this information, the undersigned certifies that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.

VII. FEE PAYMENT (check one)

- ☐ Enclosed please find a check in the amount of \$230.00 for the above-indicated fee.
- ☐ Please charge Deposit Account No. 04-1105 in the amount of \$230.00 for the above-indicated fee.
- ☒ No fee is required.

Attorney Docket No. 55,750 (45672)
T. Adachi, et al.
Page 5

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If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule, with a petition if necessary, and charge the appropriate fee to Deposit Account No. 04-1105.

Respectfully submitted,

Date: March 28, 2001

David A. Tucker
David A. Tucker (Reg. No. 27,840)

Dike, Bronstein, Roberts & Cushman
Intellectual Property Practice Group
EDWARDS & ANGELL, LLP
130 Water Street
Boston, MA 02109
Telephone: (617) 523-3400

164815

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**Information Disclosure
Statement**Atty. Docket No.
55,750 (45672)Serial No.
Unassigned**PTO - 1449**

Applicant(s): Takako ADACHI

Filing Date
HerewithArt Unit
Unassigned**UNITED STATES PATENT DOCUMENTS**

Exam. Initials	Ref. No.	Document Number	Date	Name	Class	File Date
	AA	USSN: 09/632,878				8/4/2000

FOREIGN PATENT DOCUMENTS

Exam. Initials	Ref. No.	Document Number	Date	Country or Office	Class	
	BA	04288589 A	10/1992	JAPAN		

OTHER DOCUMENTS (INCL. TITLE, AUTHOR, DATE, PAGES, ETC)

Exam. Initials	Ref. No.	

Examiner:

Date:

(19)



JAPANESE PATENT OFFICE

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PATENT ABSTRACTS OF JAPAN

(11) Publication number: **04288589 A**(43) Date of publication of application: **13 . 10 . 92**

(51) Int. Cl

G09G 3/36**G02F 1/133****H04N 5/66**(21) Application number: **03150577**(22) Date of filing: **21 . 06 . 91**(30) Priority: **03 . 09 . 90 JP 02232821**

(71) Applicant:

TOSHIBA CORP

(72) Inventor:

OKUMURA HARUHIKO**FUJIWARA HISAO****ITAKURA TETSURO**

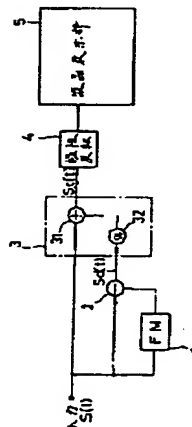
(54) LIQUID CRYSTAL DISPLAY DEVICE

(57) Abstract:

PURPOSE: To offer the liquid crystal display device equipped with a driving circuit which realize a response speed nearly as fast as or faster than that of a binary display even with a half-tone level.

CONSTITUTION: An image storage circuit 1 which holds at least one field image of an input image signal is provided, and a time base filter circuit 3 detects level variation of each picture element in the time-base direction from the image signal held in the storage circuit 1 and the input image signal and performs high-frequency emphasized filtration in the time-base direction of each picture element for the input image signal according to the detection output. Consequently, the response characteristics of the liquid crystal display device are improved, the response speed of a half-tone display is made fast, and high picture quality with a reduced after-image is obtained.

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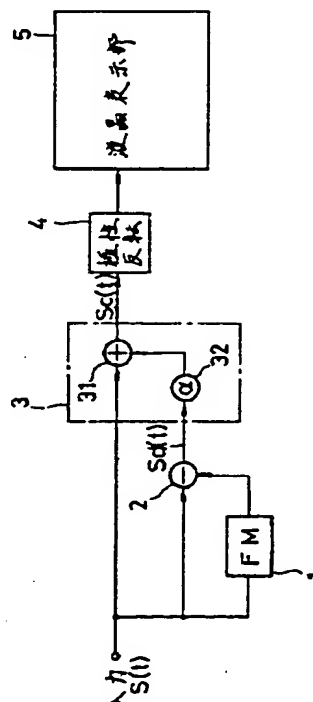
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(54) 【発明の名称】 液晶表示装置

(57) 【要約】

【目的】 中間調レベルでも二値表示なみ若しくはそれ以上の応答速度を実現し得る駆動回路を備えた液晶表示装置を提供することを目的とする。

【構成】 入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路1を備え、この記憶回路1に保持された画像信号と入力画像信号とから各画素の時間軸方向のレベル変動を検出して、その出力に応じて入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路3を設けることにより、液晶表示装置の応答特性を改善し、特に中間調表示での応答速度を高速化して残像を低減した高画質を得る。



【特許請求の範囲】

【請求項1】入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路と、この記憶回路に保持された画像信号と前記入力画像信号とから各画素の時間軸方向のレベル変動を検出するレベル変動検出回路と、この検出回路の出力に応じて前記入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路と、この時間軸フィルタ回路の出力信号が供給される液晶表示部と、を備えたことを特徴とする液晶表示装置。

【請求項2】前記時間軸フィルタ回路は、前記レベル変動検出回路の出力と前記入力画像信号の各画素の入力レベルによりフィルタ特性が変化させられる適応型フィルタ回路であることを特徴とする請求項1記載の液晶表示装置。

【請求項3】前記時間軸フィルタ回路は、前記各画素の時間軸方向のレベル変動の極性に応じて異なる特性を持つことを特徴とする請求項1記載の液晶表示装置。

【請求項4】入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路と、この記憶回路に保持された画像信号と前記入力画像信号とから各画素の時間軸方向のレベル変動を検出するレベル変動検出回路と、この検出回路の出力に応じて前記入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路と、この時間軸フィルタ回路の出力信号が供給される液晶表示部と、この液晶表示部の液晶温度を検出して、その検出出力に応じて前記時間軸フィルタの特性を可変制御する液晶温度検出回路と、を備えたことを特徴とする液晶表示装置。

【請求項5】入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路と、この記憶回路に保持された画像信号と前記入力画像信号とから各画素の時間軸方向のレベル変動を検出するレベル変動検出回路と、前記入力画像信号の中で動いている部分を検出する動き検出回路と、前記レベル変動検出回路および動き検出回路の出力に応じて前記入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路と、この時間軸フィルタ回路の出力信号が供給される液晶表示部と、を備えたことを特徴とする液晶表示装置。

【請求項6】入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路と、この記憶回路に保持された画像信号と前記入力画像信号とから各画素の時間軸方向のレベル変動を検出するレベル変動検出回路と、前記入力画像信号の中で動いている部分を検出する動き検出回路と、前記レベル変動検出回路および動き検出回路の出力に応じて前記入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路と、この時間軸フィルタ回路の出力信号が供給される液晶表示部と、この液晶表示部の液晶温度を検出して、その検出出力に応じて前記時間軸フィルタの特性を可変制御す

る液晶温度検出回路と、を備えたことを特徴とする液晶表示装置。

【請求項7】前記液晶温度検出回路は、前記液晶表示部を複数個に分割した小画面毎に温度検出を行い、各小画面の温度検出出力により前記時間軸フィルタの特性を最適制御することを特徴とする請求項4または6に記載の液晶表示装置。

【請求項8】前記入力画像信号の雑音除去を行う雑音除去フィルタが設けられていることを特徴とする請求項1, 4, 5または6のいずれかに記載の液晶表示装置。

【発明の詳細な説明】 【発明の目的】

【0001】

【産業上の利用分野】本発明は、液晶表示装置に係り、とくに中間調表示の応答特性を考慮した駆動回路部の改良に関する。

【0002】

【従来の技術】一般に液晶の応答速度は、液晶分子が印加された電界によって立ち上がる速度 t_r と、電界を零にしたときに各分子間の力によって元の状態に復帰する速度 t_d により決まる。これらの速度 t_r , t_d は以下の式で表される。

$$t_r = \eta d^2 / (\Delta \epsilon V - K \pi^2) \quad \dots (1)$$

$$t_d = \eta d^2 / K \pi^2 \quad \dots (2)$$

【0003】ここに、 K は、液晶の発散、ねじれ、曲げの弾性定数をそれぞれ K_1 , K_2 , K_3 としたときに、 $K = K_1 + (K_3 - 2K_2) / 4$ で表される定数である。 $\Delta \epsilon$ は、液晶分子の長軸方向の誘電率 ϵ_s と短軸方向の誘電率 ϵ_p の差 $\epsilon_s - \epsilon_p$ である。 η は液晶分子のねじれ粘性、 d は液晶セルの厚み（セルギャップ）、 V は印加電圧である。

【0004】(1), (2)式から明らかなように、液晶の応答速度を速めるには、 η , d を小さくするか、または K を大きくすればよい。ただし、 η , K は物質定数であり、 d は屈折率の異方性である Δn との兼ね合いで最小透過率が決まってくるので、それ程小さくすることはできない。そこで種々の液晶物質のブレンドによって η , K , Δn 等を変化させて高速応答を実現する努力が続けられている。また、立ち上がり速度 t_r については、 $\Delta \epsilon$ または V を変化させることにより高速化することができ、立ち下がり速度 t_d については、誘電率の異方性が低周波では正、高周波では負であることを利用して、電圧OFF時に高周波を重畳して高速化した例が知られている。

【0005】以上のような液晶応答速度の改善は、ON/OFFの二値表示の場合有効であるが、中間調表示を考慮した場合には状況は複雑になる。その事情を図面を参照して以下に説明する。

【0006】図19は電極41, 42間の一つの液晶分子43を示している。液晶分子43は、 x 軸に対して θ 、 x 軸に対して ϕ 傾いており、この状態で液晶分子4

3にz軸方向の電界がかかったときの流体力学方程式 *【0007】
は、 *【数1】

$$\begin{aligned} r_1 \cdot \partial \theta / \partial t = & f(\theta) (\partial^2 \theta / \partial z^2) \\ & + (f(\theta) \partial \theta / \partial z) / \partial z \\ & + g(\theta) (\partial \phi / \partial z)^2 \\ & + e(\theta) (\partial \phi / \partial z) \\ & + h(\theta) Dz^2 / 4\pi \end{aligned} \quad \dots (3)$$

$$r_1 \cdot \partial \phi / \partial t = (1/\cos^2 \theta) \cdot (u(\theta)(\partial \theta / \partial z) + v(\theta)) / \partial z \quad \dots (4)$$

【0008】で記述される。上式は非線形偏微分方程式であり、解析的に解くことは出来ないが、数値計算により解くことができる。また電極間に印加される入力電圧※

※Vは、 $a = (\epsilon_s - \epsilon_p) / \epsilon_p$ として、
【0009】
【数2】

$$V = (Dz / \epsilon_p) \int_0^d dz / (1 + a \sin^2 \theta) \dots (5)$$

で表される。Dzは電束密度である。

【0010】以上の(3)～(5)式を連立して解くことにより、入力電圧変化による液晶分子の過渡応答特性を求めることができる。これらの式から、液晶分子の時間的变化量は、入力電圧に依存することが分かる。この様にして求められた液晶分子の時間的变化量 $\theta(z, t)$ および $\phi(z, t)$ をBarrmanの4×4マトリクスに入れて解くことにより、最終的な光学応答特性を導出することができる。

【0011】一方、図20は液晶の透過率-入力電圧特性を示している。この特性から、通常、100/1のコントラスト比をとるためには、ノーマリ・ホワイトの場合で5V程度の入力振幅を必要とするが、中間調レベルだけを考えると、振幅は1.5～2Vになる。以上のことは、中間調レベル表示においては、応答速度が二値表示の場合より遅くなることを示している。このことは、液晶をTV等のフルカラー表示に用いた場合問題になる。

【0012】すなわち液晶表示装置をTV等のフルカラー表示に用いる場合、中間調レベルでの応答速度を10 msec程度にする必要があるが、現状は三値表示でも20 msec程度にじかなっていない。このため、動画表示には著しく残像が目立ち、高画質が得られない。

【0013】

【発明が解決しようとする課題】以上のように従来の液晶表示装置では、中間調レベルでの応答速度が十分でなく、TV等のフルカラー表示に用いた場合に高画質が得られないという問題があった。

【0014】本発明はこの様な点に鑑みなされたもの

で、中間調レベルでも二値表示なみ若しくはそれ以上の応答速度を実現し得る駆動回路を備えた液晶表示装置を提供することを目的とする。

【発明の構成】

【0015】

【課題を解決するための手段】本発明にかかる液晶表示装置は、入力画像信号の少くとも一枚のフィールド画像を保持する画像用記憶回路を備え、この記憶回路に保持された画像信号と入力画像信号とから各画素の時間軸方向のレベル変動を検出して、その出力に応じて入力画像信号の各画素の時間軸方向に高域強調フィルタをかける時間軸フィルタ回路を設けたことを特徴とする。

【0016】

【作用】本発明によれば、液晶分子の応答速度が遅い場合でも、入力画像信号の高域成分を予め持ち上げるという処理を行って液晶部に供給することにより、応答の立ち上がり、たち下がり的高速化することができる。したがって特に中間調レベルでの応答速度が改善され、TV等のフルカラー表示に用いて高画質を得ることができる。

【0017】

【実施例】以下、本発明の実施例を説明する。

【0018】図1は第1の実施例の要部構成を示す。図の入力画像信号S(t)は、ビデオ信号をR、G、Bに分解した後の信号であるが、R、G、B信号に対して同じ処理になるので、ここではそのうちの1チャンネルのみ示している。入力画像信号S(t)は、少なくとも1フィールド分の画像信号を記憶する画像用記憶回路1に保持される。差分器2は、入力画像信号S(t)と画像用

記憶回路1とから、対応する各画素信号の差をとるもので、1フィールドの間の信号レベルの変化を検出するレベル変化検出回路となっている。この差分器2から得られる時間軸方向の差信号 $S_d(t)$ は、入力画像信号 $S(t)$ と共に時間軸フィルタ回路3に入力される。

【0019】時間軸フィルタ回路3は、差信号 $S_d(t)$ に、応答速度に応じた重み係数 α をかける重み付け回路32と、重み付けられた差信号と入力画像信号 $S(t)$ を加算する加算器31とから構成されている。これはレベル変動検出回路の出力と入力画像信号の各画素の入力レベルによりフィルタ特性が変化させられる適応型フィルタ回路である。この時間軸フィルタ回路3によって入力画像信号 $S(t)$ は時間軸方向の高域が強調される。こうして得られた高域強調信号は、極性反転回路4によって交流信号に変換されて液晶表示部5に供給される。液晶表示部5は、複数本のデータ信号配線とこれと交差する複数本の駆動信号配線の各交差部に表示電極を持つ、アクティブマトリクス方式の液晶表示部である。

【0020】図2はこの実施例により、応答特性が改善される様子を示す信号波形である。説明を分かり易くするため入力画像信号 $S(t)$ が1フィールド周期で変化するものとし、図では2フィールドで信号レベルが急激に変化している場合を示している。この場合時間軸方向の入力信号変化すなわち差信号 $S_d(t)$ は図に示すように、入力画像信号が正に変化するときに1フィールド間正になり、負に変化するときに1フィールド間負になる。基本的にはこの差信号を入力信号に加えることにより、高域強調ができる。しかしながら実際には、液晶の応答速度によって入力信号変化がどの程度液晶セルの透過率変化になるかが変わってくるので、オーバーシュートが生じない範囲で補正するように重み係数 α をかける。これにより図示のような高域が補正された信号 $S_c(t)$ が得られる。この様に高域が強調される信号が液晶表示部に入力されることにより、光学応答特性 $I(t)$ は、破線で示す従来のものに対して実線で示すように改善される。

【0021】具体的には、図3に示すように液晶の伝達関数を $H_{LCD}(\omega t)$ とすると、高域強調関数 $H_c(\omega t)$ が掛けられた後の周波数特性 $H_t(\omega t)$ は以下のようになる。

$$\begin{aligned} H_t(\omega t) &= H_{LCD}(\omega t) \cdot H_c(\omega t) \\ H_c(\omega t) &= \alpha \{ 1 - \exp(j \cdot 2\pi \omega t / \omega_c) \} + 1 \\ \omega_c &= 2\pi / 60 \end{aligned}$$

【0022】すなわちこの実施例では、 $H_t(\omega t)$ が広帯域化できるように、 $H_{LCD}(\omega t)$ が低下するところを $H_c(\omega t)$ により補償することになる。実際にこの特性を求め、或いは重み係数 α を決めるためには、従来技術で説明した液晶分子のダイナミック特性を記述す

る式(3)～(5)を α をパラメータとして解いていくことになる。

【0023】図4は第2の実施例の要部構成を示す。なお以下の実施例では図1と対応する部分に図1と同一符号を付して詳細な説明は省略する。従来技術で説明したように液晶の応答速度は、立ち上がりと立ち下がりとは異なるのが通常である。そこで入力の変化が立ち上がり方向の変化であるか、立ち下がり方向の変化であるかを検出して、それぞれの場合で高域強調量を異ならせる方法が考えられる。これを実現したのが第2の実施例である。

【0024】すなわちこの実施例では、二つの重み付け回路321と322を設け、フィールド間差分が正の場合(つまり立ち上がりの時)は、高域強調のための重み係数を α_1 、負の場合(つまり立ち下がりの方の時)はこれを α_2 とする。これらの重み付け回路321、322の出力を切り替え回路33により切り替えて、加算器33に与えるようにしている。

【0025】これにより、図5に示すように、立ち上がりと立ち下がりとは異なるそれぞれ最適の高域強調量を付けた補正信号 $S_c(t)$ を得て、光学応答特性 $I(t)$ をより高速化することができる。

【0026】図6は第3の実施例の要部構成である。図6(a)が第2の実施例と異なる点は、高域強調量を変化させる制御パラメータとして、入力の変化だけでなく、入力レベルそのものをも含めたことである。これは、液晶の応答速度が入力電圧の変化だけでなく、電圧の初期値または変化後の電圧にも依存することを考慮して、より正確な高域補償を行うためである。

【0027】図6(b)は図6(a)をより一般化した実施例である。重み付け回路32の重み係数 α は、入力のフィールド間差分および入力レベルにより変化する。さらに図6(c)に示す実施例は、高域を持ち上げたい部分の周波数を高次のバンドパスフィルタBPF(またはハイパスフィルタHPF)1'により抽出して、その出力と入力レベルにより重み付け回路32の重み係数 α を制御する構成としている。この実施例によると、液晶の応答特性を補償する上でより適した高域強調フィルタとすることができる。

【0028】図7は第4の実施例の要部構成を示す。従来技術で少し説明したが、応答速度はセルギャップの二乗 d^2 に反比例している。つまり、セルギャップ d を小さくすれば応答速度は速くなる。しかし、コントラストを高くするためには、 $\Delta n d / \lambda$ (Δn :屈折率の異方性、 λ :入力波長)をモーガンの条件を満たすようにしなければならない。したがって最適なコントラストを得るためには、R、G、Bによってセルギャップを変える必要がある。これは、マルチギャップと呼ばれる。この様な場合当然ではあるが、R、G、Bによって応答速度が異なるという問題が生じる。そこでマルチギャップに対応させるべく、R、G、Bでそれぞれ高域強調量を最

適に制御するようにしたのがこの実施例である。ここでは図6(b)の基本回路を3つ用いたが、他の実施例の基本回路3つを用いてもよい。

【0029】図8は第5の実施例の要部構成を示す。この実施例では、図6(b)の実施例の回路に加えて、液晶表示部5の液晶温度を検出する温度検出器6を設け、この温度検出器6の出力により重み付け回路32を制御するようにしている。

【0030】図9に示したように、液晶の応答特性には強い温度依存性があるだけでなく、立上がりりと立ち下がりりとで異なった温度依存性を示す。これは、立上がりりは粘性 η の温度依存性に大きく影響されるのに対し、立ち下がりりは粘性 η の温度依存性を分母の弾性定数Kの温度特性が緩和するように働くことに起因している。したがってこの実施例のように、液晶温度を検出してその出力に応じて高域強調パラメータである重み係数 α を変化させるように制御する事により、応答特性の最適補償を行うことが可能になる。

【0031】図10は、液晶の物性定数の温度依存性を示している。図に示すように液晶の物性定数は温度によって変化する。したがってこの物性定数の変化を検出することにより温度検出を行うことができる。同じパネル内の液晶を用いて温度検出ができれば、そのパネルに最も適した温度補償ができる。

【0032】図11は、その様な液晶を用いた液晶温度検出器の構成例である。図10に示したように液晶の誘電率 ϵ は温度によって変化する。したがって誘電率の変化、つまり液晶容量CLCDの変化を外づけの容量CDによって電圧に変換して出力するのが、図11の温度検出原理である。つまり、図11の入出力の関係は、

$$V_{out} = V_{in} \cdot CLCD / (CD + CLCD)$$

と表されるので、液晶容量CLCDの変化を出力 V_{out} の変化として検出することができる。

【0033】液晶温度検出法としてはこの他に、光検出器を用いて液晶のしきい値 V_{th} の温度による変化を光量変化として検出する方法、マイクロプロセッサを用いてある一定時間毎に立ち上がり、立ち下がり時間を計算し、オーバーシュートのないような制御を常にフィードバックで行う方法等が考えられる。

【0034】図12は、第6の実施例の要部構成である。この実施例では、入力画像信号の動きを検出する動き検出回路8が設けられている。この動き検出回路8により検出された動き量に応じて、フィールド内とフィールド間の補間の重み付け量が決定されると共に、順次走査変換回路7において、時間軸圧縮によりインタレース信号(順次走査信号)に変換される。この順次走査変換された信号が液晶を実際に駆動する信号になるので、この信号が1フィールド期間つまり1画面の信号書き替え周期にどれだけ変化したかが、液晶の応答速度を決める重要なパラメータになる。

【0035】そこで、記憶回路1と差分器2により求まる1フィールド期間内の変化量に入力レベルと動き量に応じて変化する重み係数 α を掛ける重み付け回路32と加算回路31により構成される時間軸強調フィルタによって、順次走査変換信号が補正される。

【0036】図13は、動き検出回路8の具体的な構成例である。輝度信号の動きは、フレームメモリ11の入出力の差を差分器13により検出して、LPF14により1フレーム差分として検出される。色信号の動きはフレームメモリ11とフレーム遅延回路12の直列回路の入出力の差を差分器16により検出して、BPF17により2フレーム差分として検出される。これらの差分信号はそれぞれ絶対値検出回路15、18を通り、最大値検出回路19により最大値が検出される。この最大値検出回路19の出力は伸長回路20を通り、デコード21を通過して動き信号として出力される。伸長回路20は、速い動きに対して検出漏れがないように、2フィールドの動き情報を利用して時空間フィルタをかけるために設けられている。

【0037】この様な構成により画像の動きが検出されるわけであるが、誤検出はやはりある。たとえば、静止面のノイズを動画として検出すると、図12の構成ではそのノイズを α 倍してしまうことになる。

【0038】この誤検出を救済するためには、たとえば重み係数 α のテーブルを、図14(a)(b)のように設定することが考えられる。図14(a)に示すように、動き量が小さい時はこれをノイズと判断して、高域強調をかけないようにする。実際に、動き量をフィールド間差分とした場合で、図14(a)の破線のテーブルと実線のテーブルで比較した結果、実線のテーブルの方がノイズが大幅に減少することが確認されている。

【0039】図14(a)のテーブルの場合、画像によっては、不連続点が目立つ可能性がある。したがって図14(b)に示すように段階的に理想の線に近付けるテーブルを用いることも考えられる。

【0040】図15は、図12の実施例において、図8の実施例と同様に液晶温度検出を行って、その出力に応じて高域強調パラメータである重み係数 α を変化させる制御を行うようにした実施例である。

【0041】ところで液晶表示部に場所によって温度ムラがある場合、一点の温度検出では最適温度制御ができない。この様な場合、液晶表示部の複数箇所の温度検出を行うことが有効である。

【0042】図16は、この様な観点から図15を改良した実施例である。この実施例では、液晶表示部5を4分割して、各小画面の4角の温度をスイッチ22により切り替えて検出する。スイッチ22は画面位置検出回路23によって制御される。この様にして検出される複数箇所の温度のなかから重み係数 α の制御データとして最適のものを用いる。同様の変形は、先の図15の実施例

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に対しても行うことができる。

【0043】なお、液晶表示部の4角の温度データをそのまま用いるのではなく、例えば図17に示すような基準となる温度ムラパターンを用意しておいて、端 x_e の温度が $CT0$ になったら、距離 $x1$ での温度を $CT1$ にするという予測を行うようにすることも有効である。

【0044】図18は、図12の実施例に対して更に、画像信号入力部に雑音除去フィルタ24を設けた実施例である。先に説明したように入力信号に雑音があると、誤検出によって雑音を増幅してしまう可能性がある。この実施例のように雑音除去フィルタ24を設けることによって、誤検出を少なくすることができる。この雑音除去が有効に働くならば、動き検出回路8を省略することもできる。先に説明した図1、図4、図8の実施例に対しても同様に雑音除去フィルタを入力端子部に設けることは有効である。

【0045】

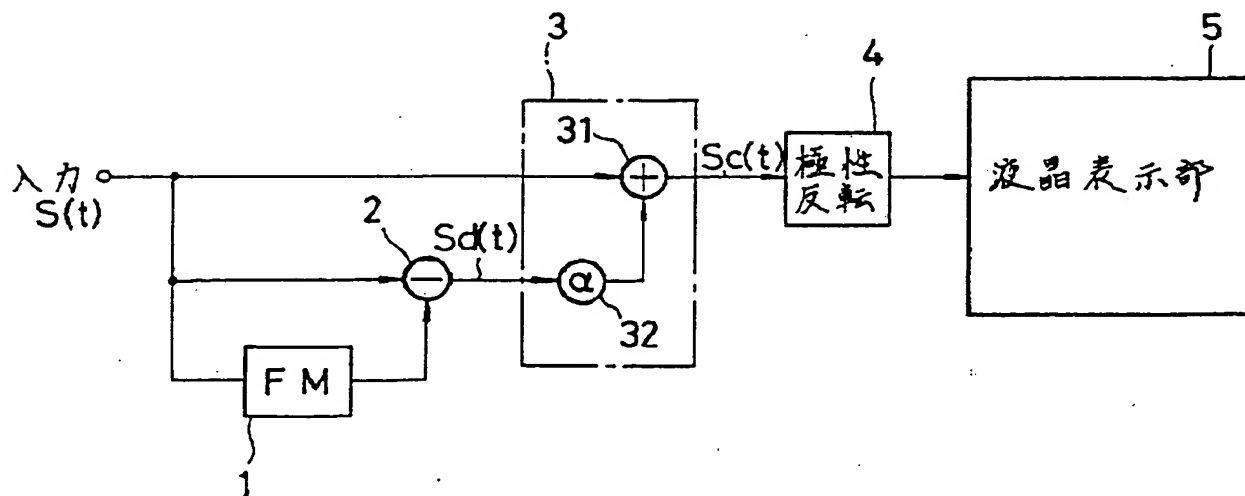
【発明の効果】以上詳細に説明したように本発明によれば、時間軸フィルタを用いて入力画像信号の高域強調を行うことにより、液晶表示装置の応答特性を改善し、特に中間調表示での応答速度を高速化して、残像を低減した高画質の液晶TVを実現することができる。

【図面の簡単な説明】

- 【図1】本発明の第1の実施例の要部構成を示す図。
 【図2】同実施例の動作を説明するための信号波形図。
 【図3】同実施例の高域強調フィルタの特性を示す図。
 【図4】第2の実施例の要部構成を示す図。
 【図5】同実施例の動作を説明するための信号波形図。
 【図6】本発明の第3の実施例の要部構成を示す図。
 【図7】本発明の第4の実施例の要部構成を示す図。

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【図1】



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【図8】本発明の第5の実施例の要部構成を示す図。

【図9】液晶の応答速度の温度依存性を示す図。

【図10】液晶の物性定数の温度依存性を示す図。

【図11】液晶の温度検出器の構成例を示す図。

【図12】動き検出回路を備えた実施例の要部構成を示す図。

【図13】同実施例の動き検出回路の構成例を示す図。

【図14】動き量と高域強調量の関係を示す図。

【図15】図12の実施例に温度検出器を設けた実施例の要部構成を示す図。

【図16】図15を変形して複数箇所の温度検出を行うようにした実施例を示す図。

【図17】温度制御のための基準温度分布を示す図。

【図18】雑音除去フィルタを設けた実施例の要部構成を示す図。

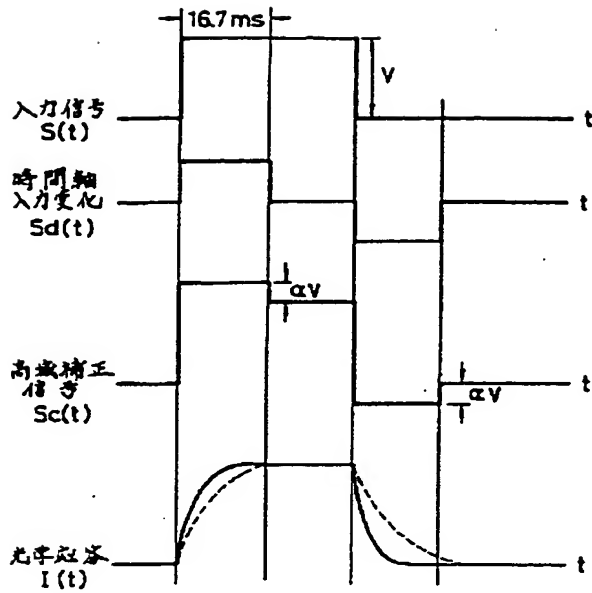
【図19】液晶の応答速度を説明するための図。

【図20】液晶の透過率の入力電圧依存性を示す図。

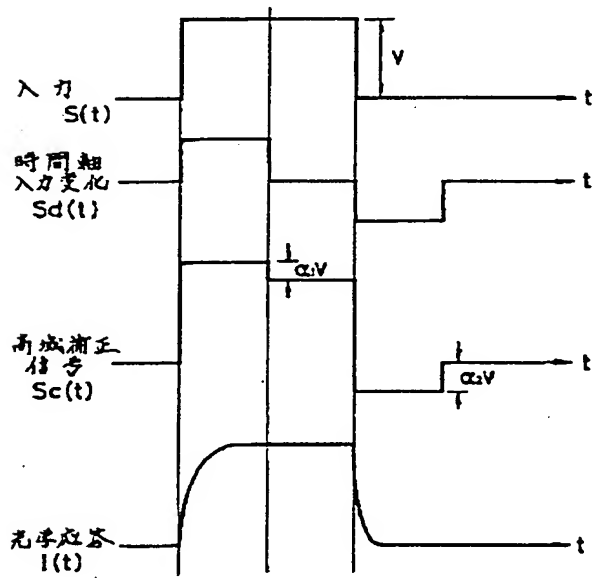
【符号の説明】

- 1…画像用記憶回路、
 2…差分器（レベル変化検出回路）、
 3…時間軸フィルタ回路、
 31…加算器、
 32…重み付け回路、
 33…切替え回路、
 4…極性反転回路、
 5…液晶表示部、
 6…温度検出器、
 7…順次走査変換回路、
 8…動き検出回路。

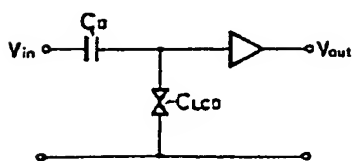
【圖2】



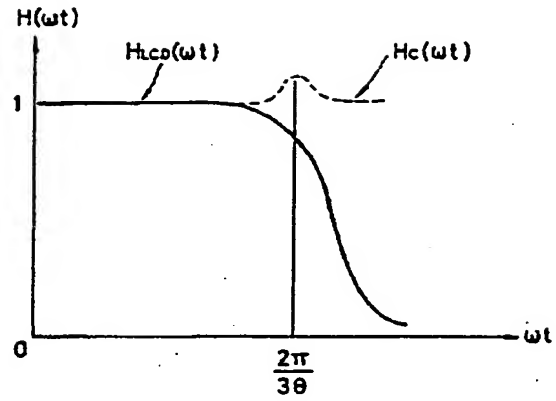
【圖5】



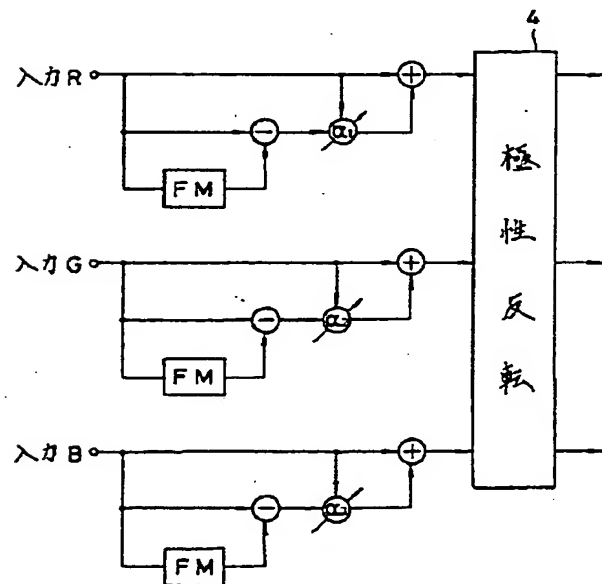
【図11】



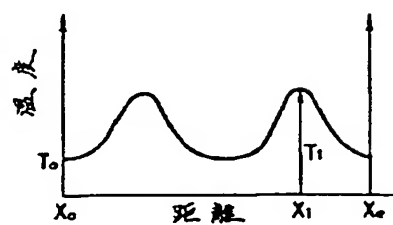
【圖3】



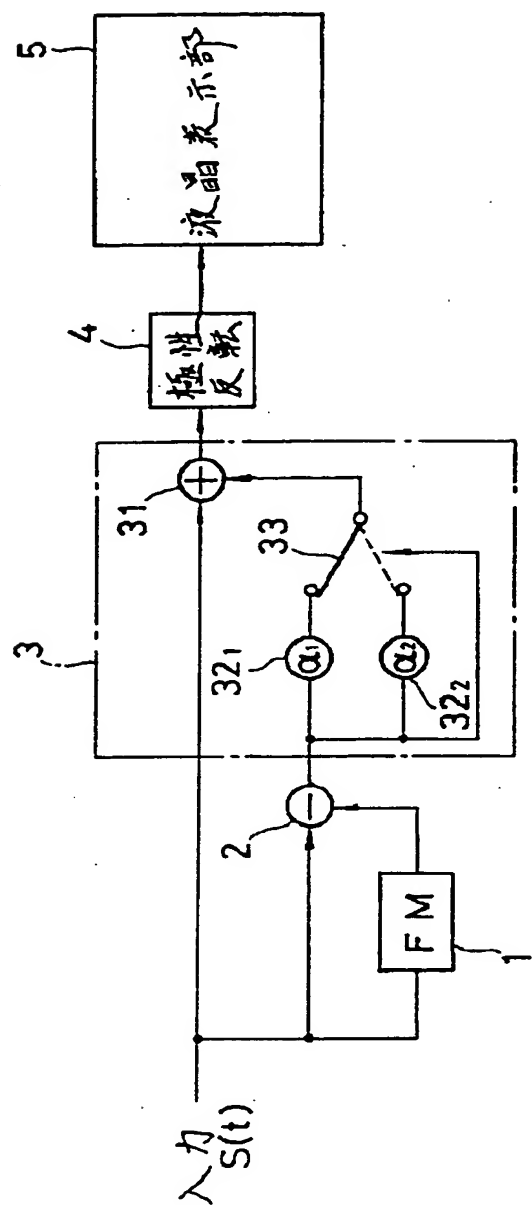
【圖7】



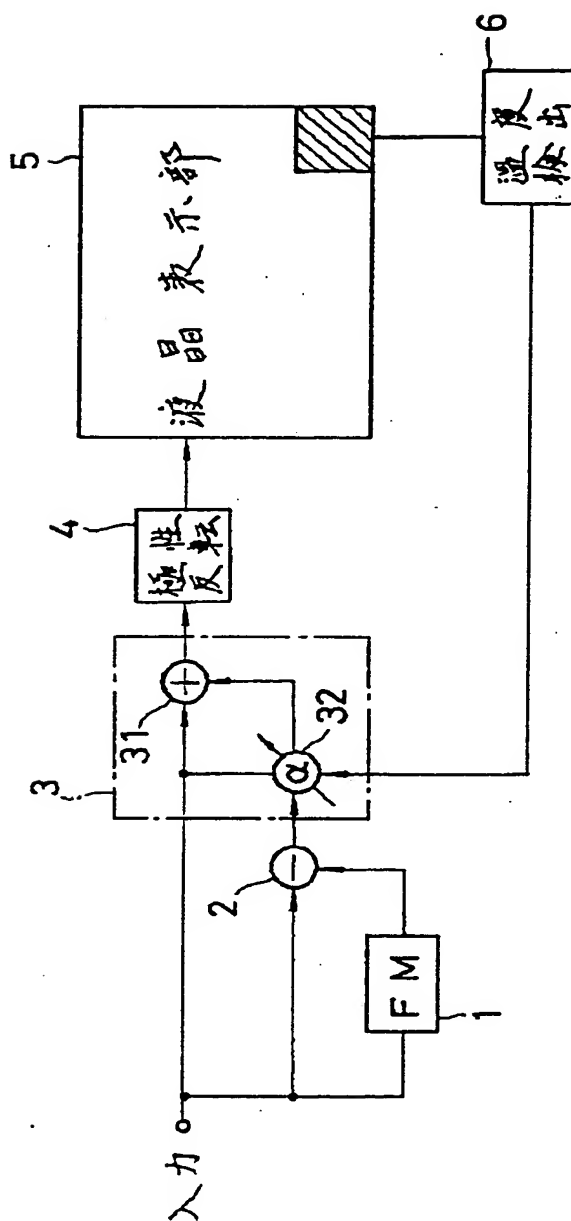
【図17】



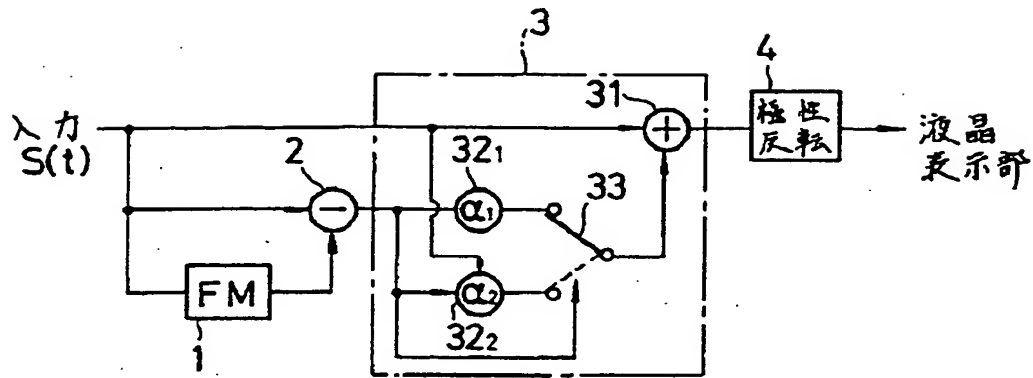
【図4】



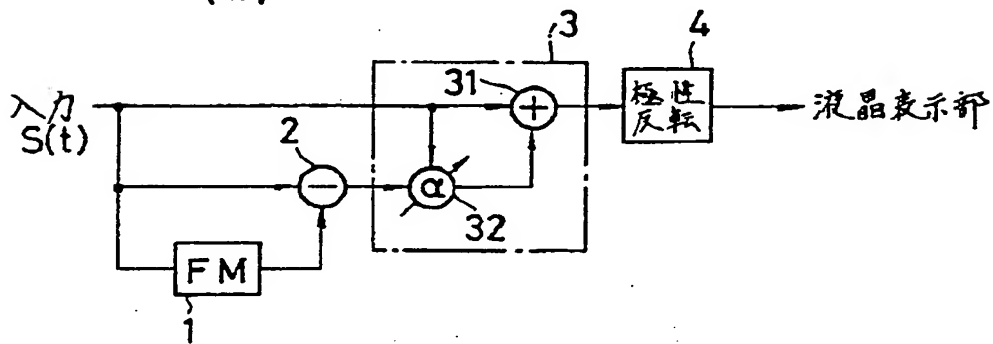
【図8】



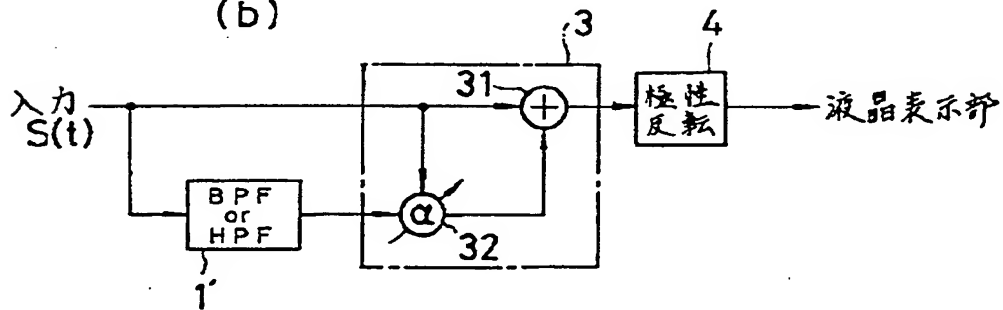
【図6】



(a)

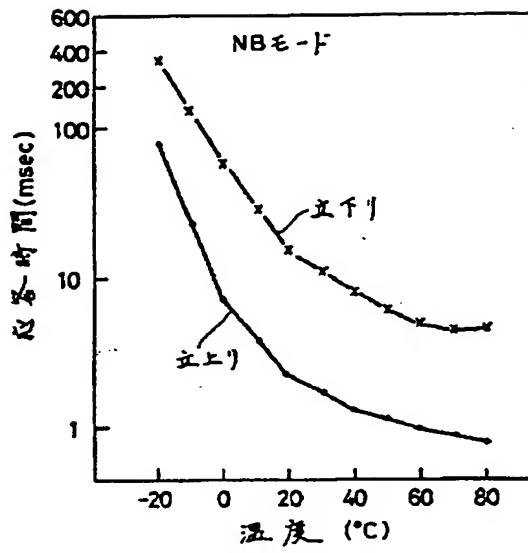


(b)

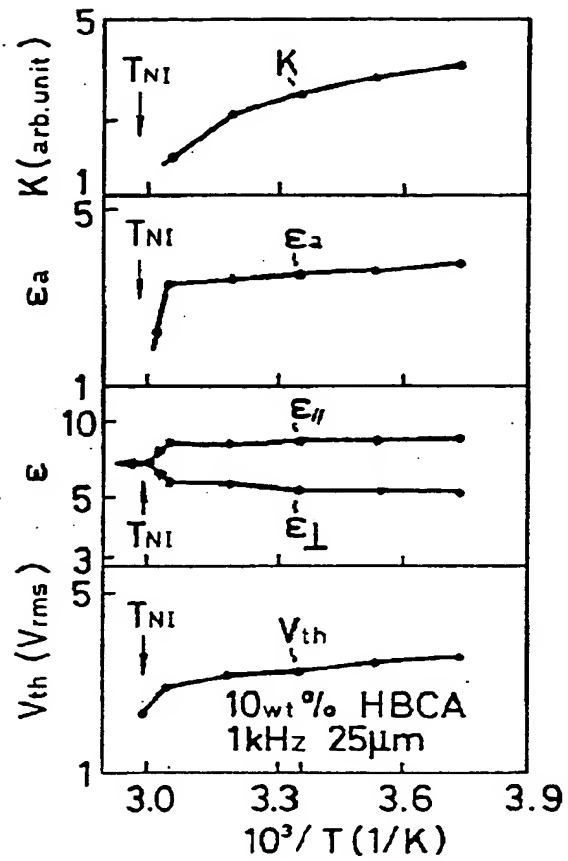


(c)

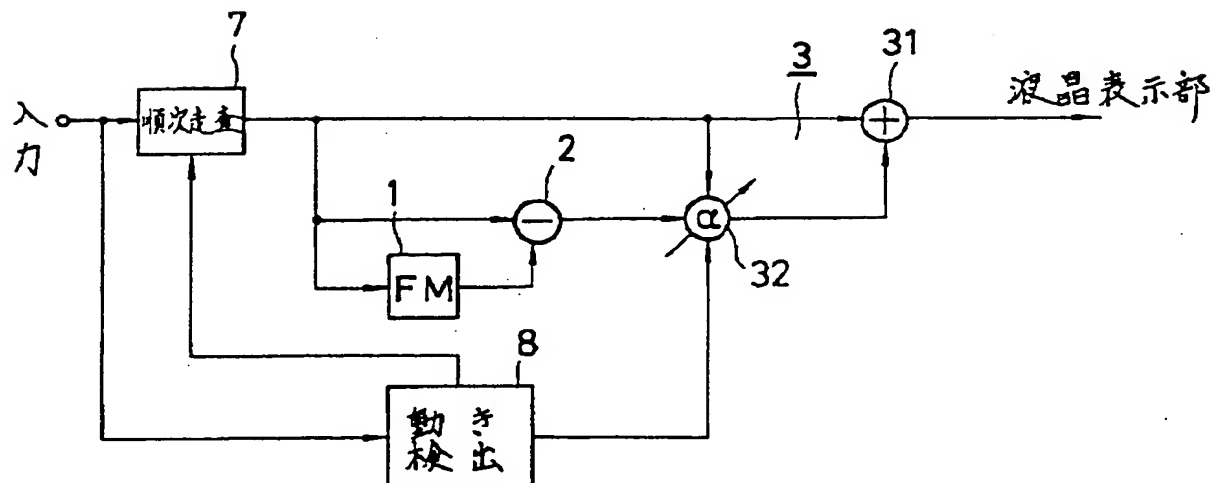
【図9】



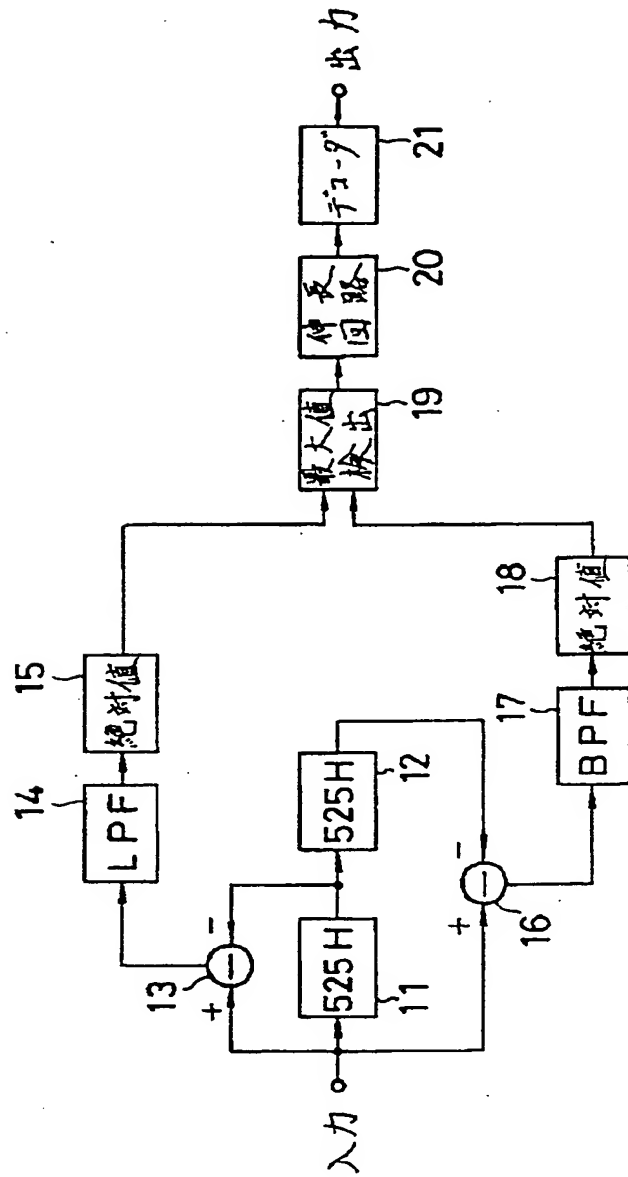
【図10】



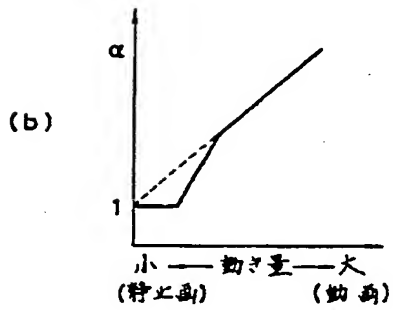
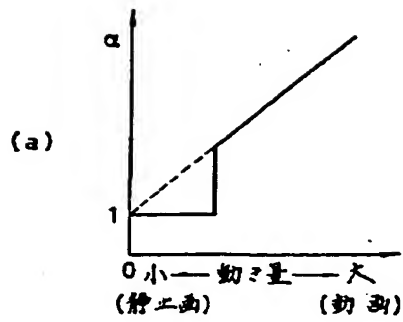
【図12】



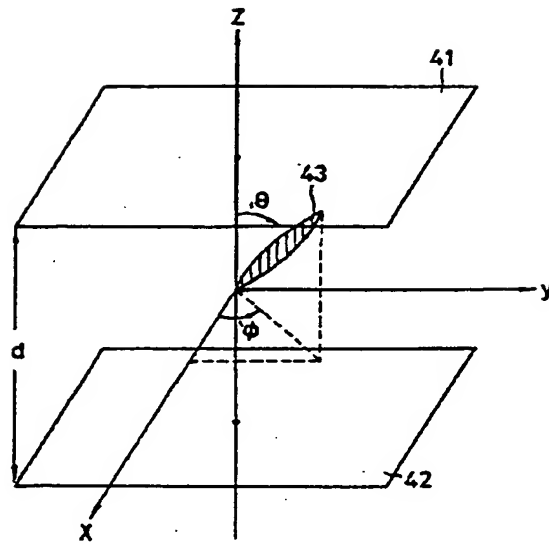
[図13]



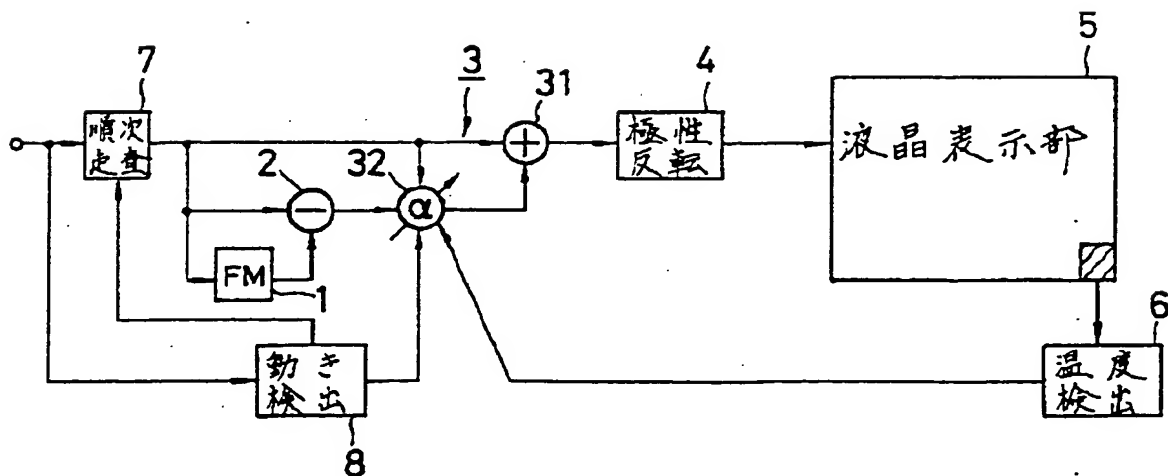
【図14】



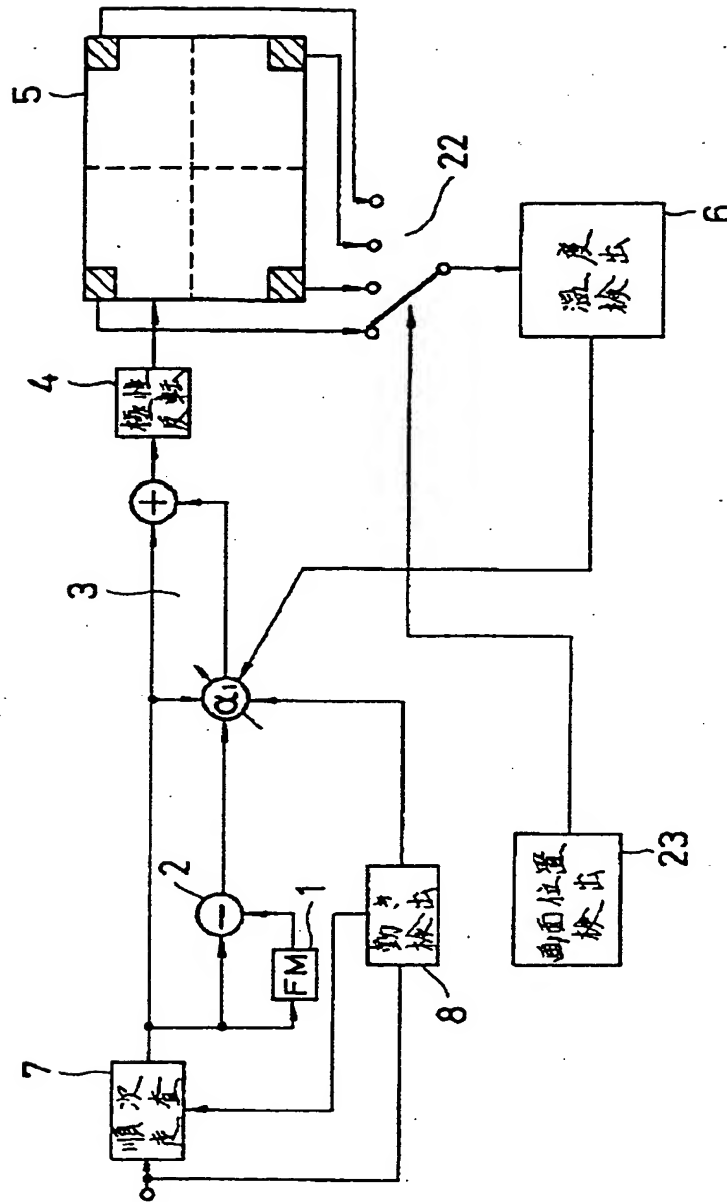
【図19】



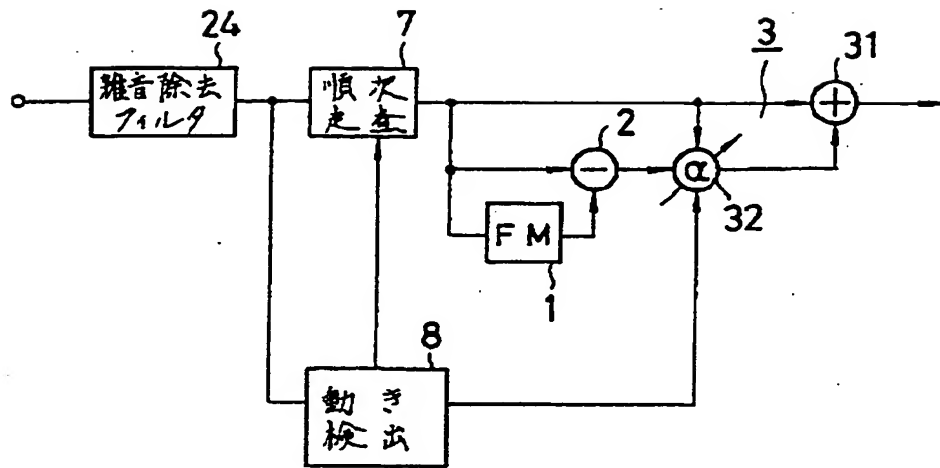
【図15】



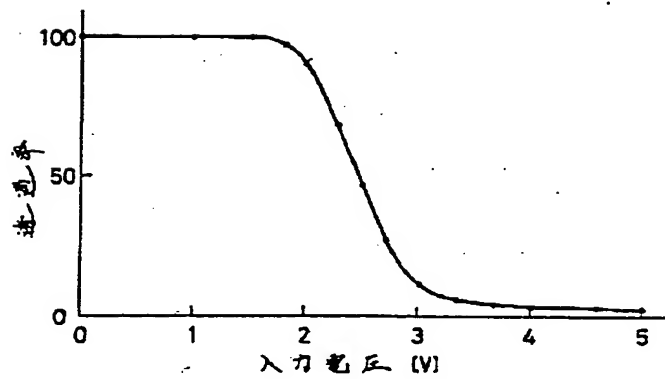
【図16】



【図18】



【図20】



DEC/DAT 55750 (45672)



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,021	03/28/2001	Takako Adachi	55,750 (45672)	5288

21874 7590 06/18/2003

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BOSTON, MA 02209

EXAMINER

ZAMANI, ALI A

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 06/18/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

COPY

107

Notice of Abandonment

Application No.

09/820,021

Examiner

Ali A. Zamani

Applicant(s)

ADACHI ET AL.

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 20 November 2002.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
(A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

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SUPPORTING INFORMATION
DATE: 11/21/2002

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

Interview Summary	Application No.		Applicant(s)	
	09/820,021		ADACHI ET AL.	
	Examiner		Art Unit	
	Ali A. Zamani		2674	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Ali A. Zamani. (3) _____.
- (2) Davidid Collins & David A. Tucker. (4) _____.

Date of Interview: 10 June 2003.

Type: a) ☒ Telephonic b) ☐ Video Conference
 c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
 If Yes, brief description: None.

Claim(s) discussed: None.

Identification of prior art discussed: None.

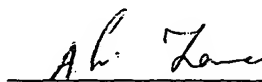
Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner indicated that the case is abandoned.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.



 Examiner's signature, if required

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December 5, 2002

United States Patent and Trademark Office
Electronic Business Center
2231 Crystal Drive; Suite 903
Arlington, VA 22202

Dear Mr. Uranga:

Enclosed please find printed and disk copies of a spreadsheet detailing patent applications and issued patents which we would like to have connected to our customer number, 21874.

Please contact this office should you have any questions. Thank you for your attention in this regard.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. G. Conlin', written over a horizontal line.

David G. Conlin

Enclosures

Customer Number Submission

Please see highlighted case on marked page of attachment.

COPY

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February 11, 2003

Mr. Tony Uranga
United States Patent and Trademark Office
Electronic Business Center
2231 Crystal Drive; Suite 903
Arlington, VA 22202

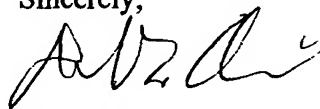
Re: Customer number 21874

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David G. Conlin

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